# MMDAgent Creator Reference

# Ver. 1.03

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**Nagoya Institute of Technology**

# Contents

# 1. About this document

This specification document describes the various configuration files and messages used in conversation scripts for creators using MMDAgent.

This document was created for the following versions of MMDAgent.

▼Versions

| Software | Version |
|---|---|
| **MMDAgent.exe** | 1.6.1 |
| **MMDAgent_Example** | 1.6 |

▼ File types described:

fst files, mdf files, ojt files, dic files, lip files, and lab files.

# 2. What is MMDAgent?

MMDAgent is software that performs speech interaction by rendering 3D objects in Open GL while processing recorded audio input with real-time speech recognition and producing real-time output with speech synthesis. It loads files containing models, definitions and settings required to perform speech recognition and synthesis, and moves 3D objects to create speech interaction according to a script described in FST format.

▼MMDAgent Web site

http://www.mmdagent.jp/

# 3. MMDAgent directory structure

## System directory: <SysDir>

This directory contains MMDAgent.exe as well as the AppData directory, the Plugins directory, and various common system configuration files.

▼ Directory and file structure
The structure of the system directory is described below.

```
<SysDir>
├ AppData/ ---------- System data directory
│  ├ Julius/ -------- Speech recognition (Julius) directory
│  │  ├ lang_m/ ----- Language model directory
│  │  ├ phone_m/ ---- Acoustic model directory
│  │  └ jconf.txt --- jconf settings file
│  ├ Open_JTalk ----- Speech synthesis (Open JTalk) directory,
pronunciation dictionary
│  └ lip.txt -------- Phonemes for lip-syncing, morph support definitions
├ Plugins/ ---------- Plugin directory
├ MMDAgent.exe ------ MMDAgent executable
└ MMDAgent.mdf ------ Common system settings
```

## Content directory <ContentsDir>

When MMDAgent.exe is launched without specifying an mdf file as an argument, the system directory is used as the content directory. After loading the common system settings file, MMDAgent.mdf, the files MMDAgent.fst, MMDAgent.dic, and MMDAgent.ojt, in the content directory are read.

If an mdf file is given to MMDAgent.exe as an argument, the directory specified in the mdf file is used as the content directory. The common system settings file, MMDAgent.mdf, is loaded first, then the specified mdf file is loaded, and then fst, dic, and ojt files are read from the content directory specified in the mdf file (file names are the same as the mdf file, except for the filename extension). Operation is the same if the mdf file is associated with MMDAgent.exe and then launched from the mdf file, or if an mdf file is drag & dropped onto MMDAgent.exe.

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If an mmda file is given to MMDAgent.exe as an argument, the mmda file is uncompressed to temporary directory and the mdf file in the directory is loaded. In this case, the uncompressed directory is deleted when MMDAgent is finished.

In all of these cases, after launching, the current directory is set to the content directory.

# 4. MMDAgent operations

## Mouse operations

MMDAgent mouse operations are described below.

| Operation | MMDAgent Operation |
|---|---|
| **Drag** | Rotate viewpoint. |
| **Shift + Drag** | Move viewpoint. |
| **Wheel** | Change the zoom value. |

## Keyboard operations

MMDAgent keyboard operations are described below.

| Operation | MMDAgent Operation |
|---|---|
| **Cursor keys** | Rotate viewpoint. |
| **Shift + cursor key** | Move viewpoint. |
| **+/-** | Change zoom value. |
| **Esc** | Close program. |
| **B** | Toggle bone display ON and OFF. |
| **D** | Toggle log display ON and OFF (debug screen). |
| **E** | Make edges thicker. |
| **Shift + E** | Make edges thinner. |
| **F** | Toggle full screen display ON and OFF. |
| **Shift + F** | Toggle fst log display ON and OFF. |
| **H** | Toggle hold function ON and OFF (temporary pause). |
| **Shift + J** | Toggle sound volume bar ON and OFF. |
| **L** | Toggle mouse cursor tracking ON and OFF. |
| **Shift + O** | Open the content directory. |
| **P** | Toggle physical operations ON and OFF. |
| **S** | Toggle FPS display ON and OFF. |
| **W** | Toggle wireframe display ON and OFF. |
| **Shift + W** | Toggle rigid body display ON and OFF. |
| **X** | Toggle self-shadow ON and OFF. |
| **PageUp/PageDown** | Scroll the log display screens. |

## Drag & Drop

Operations when particular files are dragged and dropped onto MMDAgent are described below.

Note that a DRAGANDDROP message is output when the file is dropped.

| File type + operation | Where dropped | MMDAgent operation |
| --- | --- | --- |
| **.vmd** | Model | The dropped motion is played in a loop. |
| **.vmd + Shift** | Model | The dropped motion is played once. |
| **.vmd + Ctrl** | - | The dropped motion is played in a loop for all models. |
| **.vmd + Ctrl + Shift** | - | The dropped motion is played once for all models. |
| **.pmd** | Model | Changes the drop-target model. |
| **.pmd + Ctrl** | - | Displays the drop-target model. |
| **(.png .jpg .bmp)** | - | Sets the background to the dropped image. |
| **(.png .jpg .bmp) + Ctrl** | - | Sets the floor to the dropped image. |
| **.xpmd** | - | Sets the stage to the dropped model. |

## Startup arguments

Arguments that can be set when starting MMDAgent.exe are described below.

| File | MMDAgent operation |
| --- | --- |
| **.pmd** | Model files specified as arguments are loaded when MMDAgent launches. If multiple model file arguments are specified, all model files are loaded. |
| **.mdf** | If an mdf file is specified as an argument, the directory of the mdf file  is used as the content directory when MMDAgent launches. |
| **.mmda** | If an mmda file is specified as an argument, the mmda file is uncompressed to temporary directory and an mdf file in the uncompressed directory is loaded. This directory is used as the content directory. |

# 5. fst files

## Overview

These files define conversation scripts executed by MMDAgent.

Normally, MMDAgent is run with one fst file, but multiple fst files can also be run in parallel. In such cases, place sub-fst files in the same directory as the main fst file using the naming convention below, and they will be run in parallel.

▼Sub-fst file naming convention

[Naming convention]

```
(Main fst filename).fst.(sub fst file name).fst
```

[Example]

```
MMDAgent.fst.Sub.fst
```

## Syntax

Files contain sequences of rules to perform, consisting of current state number, next state number, condition message, and execution message.

[space] and [tab] characters are used as separators in the syntax.

When there are spaces in the message, double quotation marks "" have to be used.

Lines beginning with the [#] character are treated as comments.

```
(Current state)|(Next state)|(Condition message)|(Message to be executed)
```

▼Example

An example that displays a model file when the 1 key is pressed is given below.

```
# When the 1 key is pressed, display a model.
0 1 KEY|1 MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0
```

▼Explanation

1. Current state number (1st field)
   The current state number.

2. Next state number (2nd field)

The state number to transition to after executing the message.

3. Condition message (3rd field)

   Message that is the condition for performing this rule.

4. Message to be executed (4th field)

   The message to be executed if the condition is satisfied.

▼Sample script

An fst file consists of multiple lines having the four fields described above. The following sample script describes a scenario in which a model file is first displayed, and then, when speech is recognized "Hello") or there is keyboard input (the '1' key), the model synthesizes speech ("Hello").

```
0   1 <eps>                          MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0

1  10 <eps>                          MOTION_ADD|mei|base|Motion¥mei_wait¥mei_wait.vmd|FULL|LOOP|ON|OFF

10 11 RECOG_EVENT_STOP|Hello <eps>

10 11 RECOG_EVENT_STOP|Hellow <eps>

10 11 KEY|1                          <eps>

11 12 <eps>                          SYNTH_START|mei|mei_voice_normal|Hello.

12 10 SYNTH_EVENT_STOP|mei           <eps>
```

▼Notes

1. Initial value of state number

   The state number is always 0 (zero) when MMDAgent is launched. Each fst file has its own state number and state numbers are not common to multiple fst files.

2. If multiple lines have the same state number

   If there are multiple lines with the same state number, rules appearing earlier take precedence.

3. Checking messages that are occurring

   Messages can be checked by displaying the debug screen (press the D key).

## Variables

Local variables can be used in an fst file.

5th field is used to assign values.

All values are used as strings.

ASCII alphabet, digit, under bar can be used as variable name.

The variables can be used in 3rd and 4th field.

▼Sample script

```
# When 1 key is pressed, value "Nagoya" is assigned to variable "place1".
0 1 KEY|1 <eps> ${place1}=Nagoya
# When 1 key is pressed, the value in "place1" is assigned to "place2".
1 2 KEY|1 <eps> ${place2}=${place1}
# When 1 key is pressed, the value in "place2" is assigned to
  "place3"and"place4".
2 3 KEY|1 <eps> ${place3}=${place2},${place4}=${place2}
# When 1 key is pressed, show "Nagoya.pmd" model.
3 4 KEY|1 MODEL_ADD|map|${place4}.pmd
```

# Regular expression

Regular expression can be used in 3rd field of fst file.

When regular expression is used, 3rd field include matching patterns have to be enclosed in @ marks.

Matched strings can be obtained by using () marks and these strings are stored to ${1}, ${2}, ⋯ variables automatically.

▼Sample script

```
# The words before "station" are assigned to $station.
0 1 @RECOG_EVENT_STOP¥|.*?([^,]*),?[Ss]tation.*@ <eps> ${station}=${1}
# The speech recognition results are assigned to $recog_string.
0 2 @RECOG_EVENT_STOP¥|(.*)@ <eps> ${recog_string}=${1}
# When motion is started, model and motion names are assigned to $model
  and $motion respectively.
0 3 @MOTION_EVENT_ADD¥|(.*)¥|(.*)@ <eps> ${model}=${1},${motion}=${2}
```

# Messages

# MODEL_ADD

▼ Description

Adds a model and displays it in the 3D space.

After the model file has been added, a MODEL_EVENT_ADD message is output.

▼ Syntax

```
MODEL_ADD|(model alias)|(model file name)|(x position),(y position),(z
position)|(x rotation),(y rotation),(z rotation)|(ON or OFF for
cartoon)|(parent model alias)|(parent bone name)
```

[Arguments]

- *(model alias)*

   An alias used to refer to the added model.


- *(model file name)*

   The path of the model file being displayed.

   Specify a path relative to the current directory or an absolute path.


- *(x position), (y position), (z position)  * Optional. If omitted, the model will be displayed at 0,0,0.*

   The model display position.

   Enter X, Y, and Z values separated by commas.

   If a parent model alias is specified, the position is calculated relative to the parent

   model.


- *(x rotation),(y rotation),(z rotation) * Optional. If omitted, 0,0,0 is used.*

   Specify values for x rotation, y rotation and z rotation separated by commas.


- *(ON or OFF for cartoon) * Optional. If omitted, ON*

   Enable or disable Toon rendering.

   ON: enabled, OFF: disabled.

- *(parent model alias)  * Optional.*

    The name of the parent model to use as a basis.


- *(parent bone name)  * Optional. If omitted, CenterBone*

    Name of the bone to use as a basis.

    Enter the name of a parent model bone.


▼ Sample script

```
# Display the 'mei' model and a menu icon based on the mei model.

# Then, when the 1 key is pressed, mei performs a motion and the menu moves accordingly.

0 1 <eps> MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0|0.0,0.0,0.0

1 2 <eps> MODEL_ADD|menu|Accessory¥menu¥menu.pmd|0.0,-7.5,0.0|0.0,0.0,0.0|ON|mei|Right wrist

2 2 KEY|1 MOTION_ADD|mei|bye|Motion¥mei_bye¥mei_bye.vmd|FULL|ONCE|ON|OFF
```


▼ Related messages
MODEL_CHANGE
MODEL_DELETE
MODEL_EVENT_ADD
MODEL_EVENT_CHANGE
MODEL_EVENT_DELETE

## MODEL_CHANGE

▼ Description

Changes the model.

After the model has been changed, a MODEL_EVENT_CHANGE message is output.

▼ Syntax

```
MODEL_CHANGE|(model alias)|(model file name)
```

[Arguments]

- *(model alias)*

  Name of the model being changed.

- *(model file name)*

  Model file path after the change.

  Specify a path relative to the current directory or an absolute path.

▼ Sample script

```
# Change the model when the 1 key is pressed.
0 1 <eps> MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0
1 2 KEY|1 MODEL_CHANGE|mei|Model¥sd_mei¥sd_mei.pmd
```

▼ Related messages

MODEL_ADD

MODEL_DELETE

MODEL_EVENT_ADD

MODEL_EVENT_CHANGE

MODEL_EVENT_DELETE

## MODEL_DELETE

▼ Description

Delete a model.

After the model has been deleted, a MODEL_EVENT_DELETE message is output.

▼ Syntax

```
MODEL_DELETE|(model alias)
```

[Arguments]

- *(model alias)*

  The name of the model to delete.

▼ Sample script

```
# Delete the model when the 1 key is pressed.
0 1 <eps> MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0
1 2 KEY|1 MODEL_DELETE|mei
```

▼ Related messages

MODEL_ADD

MODEL_CHANGE

MODEL_EVENT_ADD

MODEL_EVENT_CHANGE

MODEL_EVENT_DELETE

# MODEL_EVENT_ADD

▼ Description

Output after a model has been added.

▼ Syntax

```
MODEL_EVENT_ADD|(model alias)
```

[Arguments]

- *(model alias)*

  The name of the added model.

▼ Sample script

```
#  Synthesize speech after a model has been added.
0 1 <eps>              MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0
1 2 MODEL_EVENT_ADD|mei SYNTH_START|mei|mei_voice_normal|Model added
```

▼ Related messages

MODEL_ADD

MODEL_CHANGE

MODEL_DELETE

MODEL_EVENT_CHANGE

MODEL_EVENT_DELETE

# MODEL_EVENT_CHANGE

▼ Description

Output after a model change has completed.

▼ Syntax

```
MODEL_EVENT_CHANGE|(model alias)
```

[Arguments]

- *(model alias)*

  The name of the changed model.

▼ Sample script

```
# Change the model when the 1 key is pressed and then synthesize speech.
0 1 <eps>                 MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0
1 2 KEY|1                 MODEL_CHANGE|mei|Model¥sd_mei¥sd_mei.pmd
2 3 MODEL_EVENT_CHANGE|mei SYNTH_START|mei|mei_voice_normal|Model changed
```

▼ Related messages

MODEL_ADD

MODEL_CHANGE

MODEL_DELETE

MODEL_EVENT_ADD

MODEL_EVENT_DELETE

# MODEL_EVENT_DELETE

▼ Description

Output when a model has been deleted.

▼ Syntax

```
MODEL_EVENT_DELETE|(model alias)
```

[Arguments]

- *(model alias)*

  Name of deleted model.

▼ Sample script

```
# Delete a  model when the 1 key is pressed and then synthesize speech.
0 1 <eps>                 MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0,0.0
1 2 KEY|1                 MODEL_DELETE|mei
2 3 MODEL_EVENT_DELETE|mei SYNTH_START|mei|mei_voice_normal|Model deleted
```

▼ Related messages

MODEL_ADD
MODEL_CHANGE
MODEL_DELETE
MODEL_EVENT_ADD
MODEL_EVENT_CHANGE

## MOTION_ADD

▼ Description

Add a motion to a model.

After the motion is added, a MOTION_EVENT_ADD message is output, and after the motion playback has completed, a MOTION_EVENT_DELETE message is output.

▼ Syntax

```
MOTION_ADD|(model alias)|(motion alias)|(motion file name)|(FULL or
PART)|(ONCE or LOOP)|(ON or OFF for smooth)|(ON or OFF for repos)
```

[Arguments]

- *(model alias)*

  The name of the model to which the motion will be added.

- *(motion alias)*

  A name used to reference the added motion.

- *(motion file name)*

  The path of the motion file to be added.

  Specify a path relative to the current directory or an absolute path.

- *(FULL or PART) * Optional. If omitted, FULL*

  Set the bone to which the motion is added.

  FULL: All bones, PART: Bone for which key frames are set.

- *(ONCE or LOOP)  * Optional. If omitted, ONCE*

  Set for looping playback.

  ONCE: Play only once,  LOOP: Play until the motion is deleted.

  If looping playback is selected, a MOTION_EVENT_DELETE message will not be issued.

*- (ON or OFF for smooth)  * Optional. If omitted, ON*

   Enable or disable smoothing.

   ON: Enabled, OFF: Disabled.

*- (ON or OFF for reposition)  * Optional. If omitted, ON*

   Enable or disable corrections to position.

   ON: Enabled, OFF: Disabled.

▼ Sample script

```
# Play the motion in a loop when the 1 key is pressed.

# Play the motion once when the 2 key is pressed.

0 1 <eps>                     MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0

1 2 KEY|1                     MOTION_ADD|mei|bye|Motion¥mei_bye¥mei_bye.vmd|FULL|LOOP

1 2 KEY|2                     MOTION_ADD|mei|bye|Motion¥mei_bye¥mei_bye.vmd|FULL|ONCE

2 1 MOTION_EVENT_DELETE|mei|bye <eps>
```

▼ Related messages

MOTION_ACCELERATE

MOTION_CHANGE

MOTION_DELETE

MOTION_EVENT_ADD

MOTION_EVENT_ACCELERATE

MOTION_EVENT_CHANGE

MOTION_EVENT_DELETE

# MOTION_ACCELERATE

▼ Description

Change the speed of motion playback.

After the playback speed has changed, a MOTION_EVENT_ACCELERATE message is output.

▼ Syntax

```
MOTION_ACCELERATE|(model alias)|(motion
alias)|(speed)|(duration)|(specified time for end)
```

[Arguments]

- *(model alias)*

    The name of the model for which motion playback speed will be changed.

- *(motion alias)*

    The name of the motion for which playback speed will be changed.

- *(speed)  * Optional. If omitted, 0*

    Target speed.

    Specified as a multiplier value of 0 (zero) or greater with 1.0 interpreted as 30 frames/s.

- *(duration)  * Optional. If omitted, 0*

    The time taken to change from the current speed to the target speed.

    A value of 0 (zero) or greater in seconds.

    The change will be more gradual with higher values, and will be immediate for a value of zero.

- *(specified time for end)  * Optional. If omitted, -1*

    The playback position for the motion to be played after reaching the target speed.

    Specify a value less than the end of the motion in seconds.

    If a negative value is specified, the playback speed will be changed immediately.

▼ Sample script

```
# Change the motion playback speed when the 1 key is pressed.
0 1 <eps> MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0
1 2 <eps> MOTION_ADD|mei|bye|Motion¥mei_bye¥mei_bye.vmd|FULL|LOOP
2 2 KEY|1 MOTION_ACCELERATE|mei|bye|2.0|0|-1
```

▼ Related messages

MOTION_ADD

MOTION_CHANGE

MOTION_DELETE

MOTION_EVENT_ADD

MOTION_EVENT_ACCELERATE

MOTION_EVENT_CHANGE

MOTION_EVENT_DELETE

## MOTION_CHANGE

▼ Description

Change a motion during playback.

When the motion has been changed, a MOTION_EVENT_CHANGE message is output.

▼ Syntax

```
MOTION_CHANGE|(model alias)|(motion alias)|(motion file name)
```

[Arguments]

- *(model alias)*

  The name of the model for which the motion will be changed.

- *(motion alias)*

  The name of the motion to change.

- *(motion file name)*

  The path of the motion file after the change.

  Specify a path relative to the current directory or an absolute path.

▼ Sample script

```
# Change the motion when the 1 key or the 2 key is pressed.
0 1 <eps> MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0
1 2 <eps> MOTION_ADD|mei|base|Motion¥mei_wait¥mei_wait.vmd|FULL|LOOP|ON|OFF
2 2 KEY|1 MOTION_CHANGE|mei|base|Motion¥mei_idle¥mei_idle_think.vmd
2 2 KEY|2 MOTION_CHANGE|mei|base|Motion¥mei_idle¥mei_idle_sleep.vmd
```

▼ Related messages

MOTION_ADD

MOTION_ACCELERATE

MOTION_DELETE

MOTION_EVENT_ADD

MOTION_EVENT_ACCELERATE

MOTION_EVENT_CHANGE

MOTION_EVENT_DELETE

# MOTION_DELETE

▼ Description

Delete a motion that is playing.

When the motion has been deleted, a MOTION_EVENT_DELETE message is output.

▼ Syntax

```
MOTION_DELETE|(mpdel alias)|(motion alias)
```

[Arguments]

- *(mpdel alias)*

  The name of the model for which the motion will be deleted.

- *(motion alias)*

  The name of the motion to be deleted.

▼ Sample script

```
# Delete the motion when the 1 key is pressed.
0 1 <eps> MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0
1 2 <eps> MOTION_ADD|mei|base|Motion¥mei_wait¥mei_wait.vmd|FULL|LOOP|ON|OFF
2 3 <eps> MOTION_ADD|mei|think|Motion¥mei_idle¥mei_idle_think.vmd|FULL|LOOP|ON|OFF
3 4 KEY|1 MOTION_DELETE|mei|think
```

▼ Related messages

MOTION_ADD

MOTION_ACCELERATE

MOTION_CHANGE

MOTION_EVENT_ADD

MOTION_EVENT_ACCELERATE

MOTION_EVENT_CHANGE

MOTION_EVENT_DELETE

# MOTION_EVENT_ADD

▼ Description

Output when the motion has been added.

▼ Syntax

```
MOTION_EVENT_ADD|(model alias)|(motion alias)
```

[Arguments]

- *(model alias)*

  The name of the model to which the motion was added.

- *(motion alias)*

  The name of the added motion.

▼ Sample script

```
# Add a motion when the 1 key is pressed, and synthesize speech after it has been added.

0 1 <eps>                    MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0

1 2 KEY|1                    MOTION_ADD|mei|bye|Motion¥mei_bye¥mei_bye.vmd|FULL|LOOP

2 3 MOTION_EVENT_ADD|mei|bye SYNTH_START|mei|mei_voice_normal|Motion added

3 4 SYNTH_EVENT_STOP|mei      <eps>
```

▼ Related messages

MOTION_ADD

MOTION_ACCELERATE

MOTION_CHANGE

MOTION_DELETE

MOTION_EVENT_ACCELERATE

MOTION_EVENT_CHANGE

MOTION_EVENT_DELETE

# MOTION_EVENT_ACCELERATE

▼ Description

Output after the speed of a motion has been changed.

▼ Syntax

```
MOTION_EVENT_ACCELERATE|(model alias)|(motion alias)
```

[Arguments]

- *(model alias)*

   The name of the model for which the motion speed was changed

- *(motion alias)*

   The name of the motion for which playback speed was changed.

▼ Sample script

```
# Change the playback speed of a motion when the 1 key is pressed and synthesize speech.

0 1 <eps>                         MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0

1 2 <eps>                         MOTION_ADD|mei|bye|Motion¥mei_bye¥mei_bye.vmd|FULL|LOOP

2 3 KEY|1                         MOTION_ACCELERATE|mei|bye|2.0|0|0

3 4 MOTION_EVENT_ACCELERATE|mei|bye SYNTH_START|mei|mei_voice_normal|Motion speed changed

4 2 SYNTH_EVENT_STOP|mei            <eps>
```

▼ Related messages

MOTION_ADD
MOTION_ACCELERATE
MOTION_CHANGE
MOTION_DELETE
MOTION_EVENT_ADD
MOTION_EVENT_CHANGE
MOTION_EVENT_DELETE

# MOTION_EVENT_CHANGE

▼ Description

Output after a motion change has completed.

▼ Syntax

```
MOTION_EVENT_CHANGE|(model alias)|(motion alias)
```

[Arguments]

- *(model alias)*

  The name of the model for which the motion was changed.

- *(motion alias)*

  The name of the motion that was changed.

▼ Sample script

```
# Change the motion when the 1 or 2 key is pressed and then synthesize speech.

0 1 <eps>                           MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0

1 2 <eps>                           MOTION_ADD|mei|base|Motion¥mei_wait¥mei_wait.vmd|FULL|LOOP

2 3 KEY|1                           MOTION_CHANGE|mei|base|Motion¥mei_idle¥mei_idle_think.vmd

2 3 KEY|2                           MOTION_CHANGE|mei|base|Motion¥mei_idle¥mei_idle_sleep.vmd

3 4 MOTION_EVENT_CHANGE|mei|base SYNTH_START|mei|mei_voice_normal|Motion changed

4 2 SYNTH_EVENT_STOP|mei             <eps>
```

▼ Related messages

MOTION_ADD

MOTION_ACCELERATE

MOTION_CHANGE

MOTION_DELETE

MOTION_EVENT_ADD

MOTION_EVENT_ACCELERATE

MOTION_EVENT_DELETE

# MOTION_EVENT_DELETE

▼ Description

Output after motion playback has completed, or after the motion was deleted.

▼ Syntax

```
MOTION_EVENT_DELETE|(model alias)|(motion alias)
```

[Arguments]

- *(model alias)*

   The name of the model that completed a motion or had a motion deleted.

- *(motion alias)*

   The name of the motion that completed or was deleted

▼ Sample script

```
# Delete a motion when the 1 key is pressed and synthesize voice.

0 1 <eps>                        MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0

1 2 <eps>                        MOTION_ADD|mei|base|Motion¥mei_wait¥mei_wait.vmd|FULL|LOOP

2 3 <eps>                        MOTION_ADD|mei|bye|Motion¥mei_bye¥mei_bye.vmd|FULL|LOOP

3 4 KEY|1                        MOTION_DELETE|mei|bye

4 5 MOTION_EVENT_DELETE|mei|bye  SYNTH_START|mei|mei_voice_normal|Motion deleted

5 6 SYNTH_EVENT_STOP|mei         <eps>
```

▼ Related messages

MOTION_ADD

MOTION_ACCELERATE

MOTION_CHANGE

MOTION_DELETE

MOTION_EVENT_ADD

MOTION_EVENT_ACCELERATE

MOTION_EVENT_CHANGE

## MOVE_START

▼ Description

Move a model.

When the model movement starts and completes, MOVE_EVENT_START and MOVE_EVENT_STOP messages respectively are output.

▼ Syntax

```
MOVE_START|(model alias)|(x position),(y position),(z position)|(GLOBAL
or LOCAL position)|(move speed)
```

[Arguments]

- *(model alias)*

  The name of the model to move.

- *(x position),(y position),(z position)*

  The coordinates of the destination of motion.

  Specify the X, Y, and Z coordinates separated by commas.

- *(GLOBAL or LOCAL position)  * Optional. If omitted, GLOBAL*

  Relative or absolute coordinates.

  GLOBAL: Absolute coordinates centered on the origin, LOCAL: Relative coordinates centered on the model's current position.

- *(move speed)  * Optional. If omitted, -1*

  Movement speed.

  -If set to 1, move quickly and smoothly.

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▼ Sample script

```
# Move the model left and right in absolute coordinates when the 1 or 3 key is pressed.
# Move the model left and right in relative coordinates when the 4 or 6 key is pressed.
0 1 <eps> MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0
1 1 KEY|1 MOVE_START|mei|-5.0,0.0,0.0|GLOBAL|1.0
1 1 KEY|3 MOVE_START|mei|5.0,0.0,0.0|GLOBAL|1.0
1 1 KEY|4 MOVE_START|mei|-5.0,0.0,0.0|LOCAL|1.0
1 1 KEY|6 MOVE_START|mei|5.0,0.0,0.0|LOCAL|1.0
```

▼ Related messages

MOVE_STOP
MOVE_EVENT_START
MOVE_EVENT_STOP

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## MOVE_STOP

▼ Description

Stop the motion of a model.

When the model motion is stopped, a MOVE_EVENT_STOP message is output.

▼ Syntax

```
MOVE_STOP|(model alias)
```

[Arguments]

- *(model alias)*

  The name of the model for which motion will be stopped.

▼ Sample script

```
# Move a model left and right when the 1 or 3 key is pressed.
# Then, if the 0 is pressed during the motion, stop it.
0 1 <eps> MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0
1 1 KEY|1 MOVE_START|mei|-5.0,0.0,0.0|LOCAL|1.0
1 1 KEY|3 MOVE_START|mei|5.0,0.0,0.0|LOCAL|1.0
1 1 KEY|0 MOVE_STOP|mei
```

▼ Related messages

MOVE_START

MOVE_EVENT_START

MOVE_EVENT_STOP

# MOVE_EVENT_START

▼ Description

Output when a model begins a motion.

▼ Syntax

```
MOVE_EVENT_START|(model alias)
```

[Arguments]

- *(model alias)*

  The name of the model that started the motion.

▼ Sample script

```
# Move a model left or right when the 1 or 3 key is pressed, and
# after the motion starts, wait for the 0 key to stop the motion.
0 1 <eps>                 MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0
1 2 KEY|1                 MOVE_START|mei|-5.0,0.0,0.0|LOCAL|1.0
1 2 KEY|3                 MOVE_START|mei|5.0,0.0,0.0|LOCAL|1.0
2 3 MOVE_EVENT_START|mei  <eps>
3 1 KEY|0                 MOVE_STOP|mei
3 1 MOVE_EVENT_STOP|mei   <eps>
```

▼ Related messages

MOVE_START

MOVE_STOP

MOVE_EVENT_STOP

## MOVE_EVENT_STOP

Output when the motion of a model ends or is stopped.

▼ Syntax

```
MOVE_EVENT_STOP|(model alias)
```

[Arguments]
- *(model alias)*

  The name of the model for which motion ended or was stopped.

▼ Sample script

```
# Move a model left or right when the 1 or 3 key is pressed, and then
synthesize speech after the motion has completed.
0 1 <eps>                MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0
1 2 KEY|1                MOVE_START|mei|-5.0,0.0,0.0|LOCAL|1.0
1 2 KEY|3                MOVE_START|mei|5.0,0.0,0.0|LOCAL|1.0
2 3 MOVE_EVENT_STOP|mei  SYNTH_START|mei|mei_voice_normal|Move stopped
3 1 SYNTH_EVENT_STOP|mei <eps>
```

▼ Related messages
MOVE_START
MOVE_STOP
MOVE_EVENT_START

# TURN_START

▼ Description

Rotate a model.

When the model rotation has started and stopped, TURN_EVENT_START and TURN_EVENT_STOP messages respectively are output.

▼ Syntax

```
TURN_START|(model alias)|(x position),(y position),(z position)|(GLOBAL
or LOCAL position)|(rotation speed)
```

[Arguments]

- *(model alias)*

    The name of the model to rotate.

- *(x position),(y position),(z position)*

    Rotation to the direction of X, Y, Z.

    Specify rotation to the X, Y, Z direction, separated by commas.

- *(GLOBAL or LOCAL position)  * Optional. If omitted, GLOBAL*

    Absolute or relative coordinates.

    GLOBAL: Absolute coordinates centered on the origin, LOCAL: Relative coordinates centered on the current model position.

- *(rotation speed)  * Optional. If omitted, -1*

    Rotation speed.

    If -1 is specified, rotation is rapid and smooth.

▼ Sample script

```
# When the 1 or 3 key is pressed, the model is rotated to the X direction
in absolute coordinates.
# When the 4 or 6 key is pressed, the model is rotated to the X direction
in relative coordinates.
0 1 <eps> MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0
1 1 KEY|1 TURN_START|mei|-5.0,0.0,0.0|GLOBAL|5.0
1 1 KEY|3 TURN_START|mei|5.0,0.0,0.0|GLOBAL|5.0
1 1 KEY|4 TURN_START|mei|-5.0,0.0,0.0|LOCAL|5.0
1 1 KEY|6 TURN_START|mei|5.0,0.0,0.0|LOCAL|5.0
```

▼ Related messages

TURN_STOP
TURN_EVENT_START
TURN_EVENT_STOP

# TURN_STOP

▼ Description

Stop rotation of the model.

When the model rotation has stopped, a TURN_EVENT_STOP message is output.

▼ Syntax

```
TURN_STOP|(model alias)
```

[Arguments]

- *(model alias)*

  The name of the model for which rotation will be stopped.

▼ Sample script

```
# When the 1 key is pressed, rotate the model to the X direction.
# Then, when the 0 key is pressed, stop rotation.
0 1 <eps> MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0
1 1 KEY|1 TURN_START|mei|-5.0,0.0,0.0|LOCAL|5.0
1 1 KEY|3 TURN_START|mei|5.0,0.0,0.0|LOCAL|5.0
1 1 KEY|0 TURN_STOP|mei
```

▼ Related messages

TURN_START

TURN_EVENT_START

TURN_EVENT_STOP

# TURN_EVENT_START

▼ Description

Output when rotation of a model starts.

▼ Syntax

```
TURN_EVENT_START|(model alias)
```

[Arguments]

- *(model alias)*

  The name of the model that started rotation.

▼ Sample script

```
# When the 1 or 3 key is pressed, rotation the model to the X direction,
# and after waiting for rotation to start, stop the rotation when the 0
key is pressed.
0 1 <eps>                   MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0
1 2 KEY|1                   TURN_START|mei|-5.0,0.0,0.0|LOCAL|5.0
1 2 KEY|3                   TURN_START|mei|5.0,0.0,0.0|LOCAL|5.0
2 3 TURN_EVENT_START|mei <eps>
3 1 KEY|0                   TURN_STOP|mei
3 1 TURN_EVENT_STOP|mei  <eps>
```

▼ Related messages

TURN_START
TURN_STOP
TURN_EVENT_STOP

# TURN_EVENT_STOP

▼ Description

Output when rotation of a model has ended or been stopped.

▼ Syntax

```
TURN_EVENT_STOP|(model alias)
```

[Arguments]

- *(model alias)*

  The name of the model for which rotation completed or was stopped.

▼ Sample script

```
# Stop rotation when the 1 key is pressed, and synthesize speech after
waiting for rotation to complete.
0 1 <eps>                MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0
1 2 KEY|1                TURN_START|mei|-5.0,0.0,0.0|LOCAL|5.0
1 2 KEY|3                TURN_START|mei|5.0,0.0,0.0|LOCAL|5.0
2 3 TURN_EVENT_STOP|mei  SYNTH_START|mei|mei_voice_normal|Turn stopped
3 1 SYNTH_EVENT_STOP|mei <eps>
```

▼ Related messages

TURN_START

TURN_STOP

TURN_EVENT_START

# ROTATE_START

▼ Description

Rotate the model based on the X, Y, and Z axes.

When the model starts or completes the rotation, the ROTATE_EVENT_START and ROTATE_EVENT_STOP messages respectively are output.

▼ Syntax

```
ROTATE_START|(model alias)|(x rotation),(y rotaion),(z rotation)|(GLOBAL
or LOCAL rotation)|(rotation speed)
```

[Arguments]

- *(model alias)*

   The name of the model to rotate.

- *(x rotation),(y rotation),(z rotation)*

   Rotations relative to the X, Y, and Z axes.

   Specify values for the X, Y, and Z axes separated by commas.

- *(GLOBAL or LOCAL rotation)  * Optional. If omitted, GLOBAL*

   Absolute or relative coordinates.

   GLOBAL: Absolute coordinates centered on the origin, LOCAL: Relative

   coordinates centered on the current model position.

- *(rotation speed)  * Optional. If omitted, -1*

   Rotation speed.

   If -1 is specified, rotation is rapid and smooth.

▼ Sample script

```
# When the 1 or 3 key is pressed, rotate the model around the X axis in absolute
coordinates.
# When the 4 or 6 key is pressed, rotate the model around the X axis in relative
coordinates.
0 1 <eps> MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0
1 1 KEY|1 ROTATE_START|mei|-30.0,0.0,0.0|GLOBAL|5.0
1 1 KEY|3 ROTATE_START|mei|30.0,0.0,0.0|GLOBAL|5.0
1 1 KEY|4 ROTATE_START|mei|-30.0,0.0,0.0|LOCAL|5.0
1 1 KEY|6 ROTATE_START|mei|30.0,0.0,0.0|LOCAL|5.0
```

▼ Related messages

ROTATE_STOP
ROTATE_EVENT_START
ROTATE_EVENT_STOP

## ROTATE_STOP

▼ Description

Stop the rotation of a model.

When the rotation has stopped, a ROTATE_EVENT_STOP message is output.

▼ Syntax

```
ROTATE_STOP|(model alias)
```

[Arguments]

- *(model alias)*

  The name of the model for which rotation will be stopped.

▼ Sample script

```
# When the 1 or 3 key is pressed, rotate the model around the X axis.
# Then, during rotation, when the 0 key is pressed, stop rotation.
0 1 <eps> MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0
1 1 KEY|1 ROTATE_START|mei|-30.0,0.0,0.0|LOCAL|5.0
1 1 KEY|3 ROTATE_START|mei|30.0,0.0,0.0|LOCAL|5.0
1 1 KEY|0 ROTATE_STOP|mei
```

▼ Related messages

ROTATE_START

ROTATE_EVENT_START

ROTATE_EVENT_STOP

# ROTATE_EVENT_START

▼ Description

Output when rotation of a model has started.

▼ Syntax

```
ROTATE_EVENT_START|(model alias)
```

[Arguments]

- *(model alias)*

  The name of the model for which rotation has started.

▼ Sample script

```
# When the 1 or 3 key is pressed, rotate a model around the X axis, and
# after waiting for rotation to start, wait for the 0 key to be pressed to
stop the rotation.
0 1 <eps>                 MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0
1 2 KEY|1                 ROTATE_START|mei|-30.0,0.0,0.0|LOCAL|5.0
1 2 KEY|3                 ROTATE_START|mei|30.0,0.0,0.0|LOCAL|5.0
2 3 ROTATE_EVENT_START|mei <eps>
3 1 KEY|0                 ROTATE_STOP|mei
3 1 ROTATE_EVENT_STOP|mei  <eps>
```

▼ Related messages

ROTATE_START

ROTATE_STOP

ROTATE_EVENT_STOP

# ROTATE_EVENT_STOP

▼ Description

Output when rotation of a model completes or is stopped.

▼ Syntax

```
ROTATE_EVENT_STOP|(model alias)
```

[Arguments]

- *(model alias)*

 The name of the model for which rotation completed or was stopped.

▼ Sample script

```
# When the 1 or 3 key is pressed, rotate around the X axis, then synthesize
speech.
0 1 <eps>                MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0
1 2 KEY|1                ROTATE_START|mei|-30.0,0.0,0.0|LOCAL|5.0
1 2 KEY|3                ROTATE_START|mei|30.0,0.0,0.0|LOCAL|5.0
2 3 ROTATE_EVENT_STOP|mei SYNTH_START|mei|mei_voice_normal|Rotation
stopped
3 1 SYNTH_EVENT_STOP|mei  <eps>
```

▼ Related messages

ROTATE_START

ROTATE_STOP

ROTATE_EVENT_START

# SOUND_START

▼ Description

Play a WAV or MP3 file.

When sound playback starts and stops, SOUND_EVENT_START and SOUND_EVENT_STOP messages respectively are output. If there is a lab file with the same name as the WAV file, cause the model to lip-sync automatically.

▼ Syntax

```
SOUND_START|(sound alias)|(sound file name)
```

[Arguments]

- *(sound alias)*

   A name used to refer to the playback sound.

- *(sound file name)*

   The path of the sound file to be played.

   Specify a path relative to the current directory or an absolute path.

▼ Sample script

```
# When the 1 key is pressed, play the sound.
0 1 KEY|1 SOUND_START|sound|Sound¥sample.wav
```

▼ Related messages

SOUND_STOP

SOUND_EVENT_START

SOUND_EVENT_STOP

# SOUND_STOP

▼ Description

Stop playback of a sound.

When playback has stopped, a SOUND_EVENT_STOP message is output.

▼ Syntax

```
SOUND_STOP|(sound alias)
```

[Arguments]

- *(sound alias)*

   The name of the sound to stop.

▼ Sample script

```
# When the 1 key is pressed, stop playing the sound.
0 1 <eps> SOUND_START|sound|Sound¥sample.wav
1 2 KEY|1 SOUND_STOP|sound
```

▼ Related messages

SOUND_START

SOUND_EVENT_START

SOUND_EVENT_STOP

# SOUND_EVENT_START

▼ Description

Output when playback of a sound starts.

▼ Syntax

```
SOUND_EVENT_START|(sound alias)
```

[Arguments]

- *(sound alias)*

  The name of the sound that started playback.

▼ Sample script

```
# When the 1 key is pressed, wait for sound playback to start and the
SOUND_EVENT_START message to be output.
# Then, wait for the 2 key to be pressed to stop the sound playback.
0 1 KEY|1                     SOUND_START|sound|Sound¥sample.wav
1 2 SOUND_EVENT_START|sound <eps>
2 3 KEY|2                     SOUND_STOP|sound
```

▼ Related messages

SOUND_START

SOUND_STOP

SOUND_EVENT_STOP

# SOUND_EVENT_STOP

▼ Description

Output when sound playback has ended or was stopped.

▼ Syntax

```
SOUND_EVENT_STOP|(sound alias)
```

[Arguments]

- *(sound alias)*

 The name of the sound that ended playback or was stopped.

▼ Sample script

```
# When the 1 key is pressed, play two sounds in sequence.
0 1 KEY|1                    SOUND_START|sound|Sound¥sample-01.wav
1 2 SOUND_EVENT_STOP|sound SOUND_START|sound|Sound¥sample-02.wav
2 0 SOUND_EVENT_STOP|sound <eps>
```

▼ Related messages

SOUND_START

SOUND_STOP

SOUND_EVENT_START

## STAGE

▼ Description

Set the stage file.

There are two syntax forms: one specifying a stage file in PMD format, and the other specifying floor and background images in separate BMP files.

▼ Syntax (1)

```
STAGE|(stage file name)
```

[Arguments]

- *(stage file name)*

   The path of the stage PMD file.

   Specify a path relative to the current directory or an absolute path.

▼ Sample script (1)

```
# Set a PMD file for the stage.
0 1 <eps> STAGE|Stage¥sample.pmd
```

▼ Syntax (2)

```
STAGE|(bitmap file name for floor),(bitmap file name for background)
```

[Arguments]

- *(bitmap file name for floor)*

  Path of a BMP file for the floor.

  Specify a path relative to the current directory or an absolute path.


- *(bitmap file name for background)*

  Path of a BMP file for the background.

  Specify a path relative to the current directory or an absolute path.


▼ Sample script (2)

```
# Set a BMP file for the stage.
0 1 <eps> STAGE|Stage¥building2¥floor.bmp,Stage¥building2¥background.bmp
```

# LIGHTCOLOR

▼ Description

Set the color of the light source.

▼ Syntax

```
LIGHTCOLOR|(red),(green),(blue)
```

[Arguments]

- *(red),(green),(blue)*

  The light source color.

  Enter values in the range 0.0 to 1.0 for red, green, and blue, separated by commas.

▼ Sample script

```
# When the 1 key is pressed, set the light source color to red.
# When the 2 key is pressed, set the light source color to green.
# When the 3 key is pressed, set the light source color to blue.
0 1 <eps> MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0
1 1 KEY|1 LIGHTCOLOR|1.0,0.0,0.0
1 1 KEY|2 LIGHTCOLOR|0.0,1.0,0.0
1 1 KEY|3 LIGHTCOLOR|0.0,0.0,1.0
```

▼ Related messages

LIGHTDIRECTION

# LIGHTDIRECTION

▼ Description

Set the position of the light source.

▼ Syntax

```
LIGHTDIRECTION|(x position),(y position),(z position)
```

[Arguments]

- (x position),(y position),(z position)

  The light source position.

  Enter X, Y, and Z coordinate values separated by commas.

▼ Sample script

```
# When the 1 key is pressed, change the light source position.
0 1 <eps> MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0
1 1 KEY|1 LIGHTDIRECTION|0.0,10.0,0.0
```

▼ Related messages

LIGHTCOLOR

# CAMERA

▼ Description

Configure the camera.

There are two syntax forms: set the camera position, rotation, distance, field of view and the time of the change, or specify a motion file in VMD format.

▼ Syntax (1)

```
CAMERA|(x position),(y position),(z position)|(x rotation),(y
rotation),(z rotation)|(distance)|(fovy)|(time)
```

[Arguments]

- *(x position),(y position),(z position)*

  Camera position.

  Specify X, Y, and Z coordinates separated by commas.

- *(x rotation),(y rotation),(z rotation)*

  3D rotation of the camera.

  Specify X, Y, and Z axis rotations separated by commas.

- *(distance)*

  Distance between the camera and viewed point.

- *(fovy)*

  Camera field of view.

- *(time)*

  The time interval needed for the change in seconds.

▼ Sample script (1)

```
# When the 1 key is pressed, increase the distance between camera and viewed
point.
0 1 <eps> MODEL_ADD|mei|Model\mei\mei.pmd|0.0,0.0,0.0
1 1 KEY|1 CAMERA|0.0,13.0,0.0|0.0,0.0,0.0|300|16.0|0
```

▼ Syntax (2)

```
CAMERA|(motion file name)
```

[Arguments]

- *(motion file name)*

Path of the camera motion file.

Specify a path relative to the current directory or an absolute path.

▼ Sample script (2)

```
# When the 1 key is pressed, set the camera motion to a VMD file.
0 1 <eps> MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,-14.0
1 1 KEY|1 CAMERA|Motion¥Camera¥camera.vmd
```

▼ Notes

1.  How to check the current camera settings
    Display the debug screen (press the D key) to check camera settings.

# RECOG_EVENT_START

▼ Description

Output when speech recognition starts.

▼ Syntax

```
RECOG_EVENT_START
```

▼ Sample script

```
# Synthesize speech when speech recognition has started.
0 1 <eps>                 MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,-14.0
1 2 RECOG_EVENT_START   SYNTH_START|mei|mei_voice_normal|Speech recognition
started
2 1 SYNTH_EVENT_STOP|mei <eps>
```

▼ Related messages

RECOG_EVENT_STOP

# RECOG_EVENT_STOP

▼ Description

Output when speech recognition stops.

▼ Syntax

```
RECOG_EVENT_STOP|(word sequence)
```

[Arguments]

- *(word sequence)*

The result of speech recognition.

To specify an AND condition combining multiple words, enter the words separated by commas. Note that only words appearing in the dictionary file will be output.

▼ Sample script

```
# If the words "hello" or "hellow" are recognized, synthesize "Hello".

# If the words "What are you doing?" are recognized, synthesize "Giving guidance".

0 1 <eps>                          MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,-14.0

1 2 RECOG_EVENT_STOP|Hello     SYNTH_START|mei|mei_voice_normal|Hello

1 2 RECOG_EVENT_STOP|Hellow     SYNTH_START|mei|mei_voice_normal|Hello

2 1 SYNTH_EVENT_STOP|mei           <eps>

1 3 RECOG_EVENT_STOP|What,are,you,doing SYNTH_START|mei|mei_voice_normal|Giving guidance

3 1 SYNTH_EVENT_STOP|mei           <eps>
```

▼ Notes

1. How to check the words recognized

   Words can be checked by displaying the debug screen (press the D key).

2. How to recognize an OR condition with multiple words

   Enter multiple lines with the same state number to create an OR condition.

▼ Related messages

RECOG_EVENT_START

# RECOG_MODIFY|GAIN

▼ Description

Set the gain parameter for speech input.

After the setting has been changed, a RECOG_EVENT_MODIFY|GAIN message is output.

▼ Syntax

```
RECOG_MODIFY|GAIN|(ratio)
```

[Arguments]

- *(ratio)*

  Speech recognition gain parameter.

  Dimensionless ratio.

  [Notes]

  After the speech input is recorded from the device, amplitude values are multiplied by this ratio before applying speech recognition. The default value is 1.0 (no adjustment) and speech input can be muted by setting this value to 0 (zero).

▼ Sample script

```
# When the 1 key is pressed, mute the speech input.
0 1 KEY|1 RECOG_MODIFY|GAIN|0
```

▼ Related messages

RECOG_EVENT_MODIFY|GAIN

## RECOG_EVENT_MODIFY|GAIN

▼ Description

Output when the speech input gain parameter has been modified.

▼ Syntax

```
RECOG_MODIFY|GAIN
```

▼ Sample script

```
# When the 1 key is pressed, mute the speech input and then synthesize
speech.
0 1 KEY|1                   RECOG_MODIFY|GAIN|0
1 2 RECOG_EVENT_MODIFY|GAIN SYNTH_START|mei|mei_voice_normal|Gain
modified
```

▼ Related messages

RECOG_MODIFY|GAIN

# RECOG_MODIFY|USERDICT_SET

▼ Description

Modify the user dictionary file used by MMDAgent.

After the modification, a RECOG_EVENT_MODIFY|USERDICT_SET message is output.

▼ Syntax

```
RECOG_MODIFY|USERDICT_SET|(dictionary file name)
```

[Arguments]

- *(dictionary file name)*

  The path to the dictionary file after the modification.

  Specify a path relative to the current directory or an absolute path.

▼ Sample script

```
# When the 1 key is pressed, the user dictionary is changed.
0 1 KEY|1 RECOG_MODIFY|USERDICT_SET|Test.dic
```

▼ Related messages

RECOG_MODIFY|USERDICT_UNSET

RECOG_EVENT_MODIFY|USERDICT_SET

RECOG_EVENT_MODIFY|USERDICT_UNSET

# RECOG_EVENT_MODIFY|USERDICT_SET

▼ Description

Output when the user dictionary file has been changed.

▼ Syntax

```
RECOG_EVENT_MODIFY|USERDICT_SET
```

▼ Sample script

```
# When the 1 key is pressed, the user dictionary is changed, and then speech is
synthesized.
0 1 KEY|1                          RECOG_MODIFY|USERDICT_SET|Test.dic
1 2 RECOG_EVENT_MODIFY|USERDICT_SET SYNTH_START|mei|mei_voice_normal|Dictionary set
```

▼ Related messages

RECOG_MODIFY|USERDICT_SET

RECOG_MODIFY|USERDICT_UNSET

RECOG_EVENT_MODIFY|USERDICT_UNSET

# RECOG_MODIFY|USERDICT_UNSET

▼ Description

Delete the user dictionary file read in by MMDAgent from memory.
After the data has been deleted, a RECOG_EVENT_MODIFY|USERDICT_UNSET
message is output.

▼ Syntax

```
RECOG_MODIFY|USERDICT_UNSET
```

▼ Sample script

```
# When the 1 key is pressed, the user dictionary is deleted from memory.
0 1 KEY|1 RECOG_MODIFY|USERDICT_UNSET
```

▼ Related messages

RECOG_MODIFY|USERDICT_SET
RECOG_EVENT_MODIFY|USERDICT_SET
RECOG_EVENT_MODIFY|USERDICT_UNSET

# RECOG_EVENT_MODIFY|USERDICT_UNSET

▼ Description

Output when the user dictionary file has been deleted from memory.

▼ Syntax

```
RECOG_EVENT_MODIFY|USERDICT_UNSET
```

▼ Sample script

```
# When the 1 key is pressed, the user dictionary file is deleted from memory, and then
speech is synthesized.
0 1 KEY|1                            RECOG_MODIFY|USERDICT_UNSET
1 2 RECOG_EVENT_MODIFY|USERDICT_UNSET SYNTH_START|mei|mei_voice_normal|Dictionary
deleted
```

▼ Related messages

RECOG_MODIFY|USERDICT_SET

RECOG_MODIFY|USERDICT_UNSET

RECOG_EVENT_MODIFY|USERDICT_SET

# SYNTH_START

▼ Description

Performs real-time speech synthesis, making the model speak.

When speech synthesis starts and stops, the SYNTH_EVENT_START and SYNTH_EVENT_STOP messages respectively, are output. When talking starts, a LIPSYNC_START message is also produced, and the specified model automatically lip syncs.

▼ Syntax

```
SYNTH_START|(model alias)|(voice alias)|(synthesized text)
```

[Arguments]

- *(model alias)*

  The name of the model that will be made to speak.

- *(voice alias)*

  The name of the speech style to use.

  Enter a name as defined in the ojt file.

- *(synthesized text)*

  The script to synthesize. 100 or fewer characters is recommended.

  The time required for speech synthesis depends on the length of the script and PC performance.

  * Caution *

  In Version 1.5, MMDAgent would crash if the script was longer than 223 characters.

▼ Sample script

```
# When the 1 key is pressed, "hello" is synthesized using mei_voice_normal.
0 1 <eps>                    MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,-14.0
1 2 KEY|1                    SYNTH_START|mei|mei_voice_normal|Hello.
2 1 SYNTH_EVENT_STOP|mei <eps>
```

▼ Related messages

SYNTH_STOP
SYNTH_EVENT_START
SYNTH_EVENT_STOP
LIPSYNC_START

# SYNTH_STOP

▼ Description

Stop speech synthesis.

When speech synthesis has stopped, a SYNTH_EVENT_STOP message is output.

▼ Syntax

```
SYNTH_STOP|(model alias)
```

[Arguments]

- *(model alias)*

  The name of the model for which speech will stop.

▼ Sample script

```
# When the 1 key is pressed, start synthesizing speech
# Then, during speech synthesis, when the 2 key is pressed, stop it.
0 1 <eps>               MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,-14.0
1 2 KEY|1               SYNTH_START|mei|mei_voice_normal|Hello. My name is Mei.
2 1 SYNTH_EVENT_STOP|mei <eps>
2 3 KEY|2               SYNTH_STOP|mei
3 1 SYNTH_EVENT_STOP|mei <eps>
```

▼ Related messages

SYNTH_START
SYNTH_EVENT_START
SYNTH_EVENT_STOP

# SYNTH_EVENT_START

▼ Description

Output when speech synthesis starts.

▼ Syntax

```
SYNTH_EVENT_START|(model alias)
```

[Arguments]

- *(model alias)*

  The name of the model for which speech started.

▼ Sample script

```
# When the 1 key is pressed, start speech synthesis and wait for the SYNTH_EVENT_START message
# Then, accept a press of the 2 key to stop the speech synthesis.
0 1 <eps>                 MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,-14.0
1 2 KEY|1                 SYNTH_START|mei|mei_voice_normal|Hello. My name is Mei.
2 3 SYNTH_EVENT_START|mei <eps>
3 1 SYNTH_EVENT_STOP|mei  <eps>
3 4 KEY|2                 SYNTH_STOP|mei
4 1 SYNTH_EVENT_STOP|mei  <eps>
```

▼ Related messages

SYNTH_START
SYNTH_STOP
SYNTH_EVENT_STOP

# SYNTH_EVENT_STOP

▼ Description

Output when speech synthesis ends or is stopped.

▼ Syntax

```
SYNTH_EVENT_STOP|(model alias)
```

[Arguments]

- *(model alias)*

   The name of the model for which speech ended or was stopped.

▼ Sample script

```
# When the 1 key is pressed, synthesize "Nice to meet you!". Then, after speech synthesis
completes,
# Synthesize "My name is Mei.".
0 1 <eps>                 MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,-14.0
1 2 KEY|1                 SYNTH_START|mei|mei_voice_normal|Nice to meet you!
2 3 SYNTH_EVENT_STOP|mei SYNTH_START|mei|mei_voice_normal|My name is Mei.
3 1 SYNTH_EVENT_STOP|mei <eps>
```

▼ Related messages

SYNTH_START

SYNTH_STOP

SYNTH_EVENT_START

# LIPSYNC_START

▼ Description

Make a model lip-sync.

When lip-sync starts and stops, LIPSYNC_EVENT_START and LIPSYNC_EVENT_STOP messages respectively are output. Normally, this is called automatically when speech begins with SYNTH_START, but this message allows just lip-syncing to be done.

▼ Syntax

```
LIPSYNC_START|(model alias)|(phoneme and millisecond pair sequence)
```

[Arguments]

- *(model alias)*

   The name of the model to start lip-syncing.

- *(phoneme and millisecond pair sequence)*

   Phoneme and duration.

   Duration is in milliseconds.

   [Example descriptor]

   To lip-sync "おはよう" ("good morning"), enter the following.

```
o,105,h,65,a,60,y,40,o,110,o,170
```

▼ Sample script

```
# When the 1 key is pressed, begin lip-syncing "おはよう" ("good morning").
0 1 <eps>                  MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0
1 1 KEY|1                  LIPSYNC_START|mei|o,105,h,65,a,60,y,40,o,110,o,170
1 1 LIPSYNC_EVENT_STOP|mei <eps>
```

▼ Related messages

SYNTH_START
LIPSYNC_STOP
LIPSYNC_EVENT_START
LIPSYNC_EVENT_STOP

# LIPSYNC_STOP

▼ Description

Stop lip-syncing.

When lip-syncing has stopped, a LIPSYNC_EVENT_STOP message is output.

▼ Syntax

```
LIPSYNC_STOP|(model alias)
```

[Arguments]

- *(model alias)*

   The name of the model for which to stop lip syncing.

▼ Sample script

```
# When the 1 key is pressed, start lip-syncing, and
# when the 2 key is pressed, stop it.
0 1 <eps>                 MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0
1 2 KEY|1                 LIPSYNC_START|mei|o,105,h,65,a,60,y,40,o,110,o,170
2 1 LIPSYNC_EVENT_STOP|mei <eps>
2 3 KEY|2                 LIPSYNC_STOP|mei
3 1 LIPSYNC_EVENT_STOP|mei <eps>
```

▼ Related messages

LIPSYNC_START

LIPSYNC_EVENT_START

LIPSYNC_EVENT_STOP

# LIPSYNC_EVENT_START

▼ Description

Output when lip-syncing starts.

▼ Syntax

```
LIPSYNC_EVENT_START|(model alias)
```

[Arguments]

- *(model alias)*

  The name of the model that started lip-syncing.

▼ Sample script

```
# When the 1 key is pressed, start lip-syncing and at the same time, start playing a motion.
0 1 <eps>                      MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0
1 2 KEY|1                      LIPSYNC_START|mei|o,105,h,65,a,60,y,40,o,110,o,170
2 3 LIPSYNC_EVENT_START|mei    MOTION_ADD|mei|bye|Motion¥mei_bye¥mei_bye.vmd|PART|ONCE
3 1 MOTION_EVENT_DELETE|mei|bye <eps>
```

▼ Related messages

LIPSYNC_START
LIPSYNC_STOP
LIPSYNC_EVENT_STOP

# LIPSYNC_EVENT_STOP

▼ Description

Output when lip-syncing ends or is stopped.

▼ Syntax

```
LIPSYNC_EVENT_STOP|(model alias)
```

[Arguments]

- *(model alias)*

　The name of the model for which lip-syncing ended or was stopped.

▼ Sample script

```
# When the 1 key is pressed, start lip-syncing and when lip-syncing ends, play a motion.

0 1 <eps>                    MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,0.0

1 2 KEY|1                    LIPSYNC_START|mei|o,105,h,65,a,60,y,40,o,110,o,170

2 3 LIPSYNC_EVENT_STOP|mei    MOTION_ADD|mei|bye|Motion¥mei_bye¥mei_bye.vmd|PART|ONCE

3 1 MOTION_EVENT_DELETE|mei|bye <eps>
```

▼ Related messages

LIPSYNC_START
LIPSYNC_STOP
LIPSYNC_EVENT_START

# VALUE_SET

▼ Description

Set a variable.

There are two types of message, one to set an arbitrary value, and one to set a random value (including decimal places).

When the variable value has been set, a VALUE_EVENT_SET message is output.

▼ Syntax (1)

```
VALUE_SET|(variable alias)|(value)
```

[Arguments]

- *(variable alias)*

  A name for referencing the variable.

- *(value)*

  The value to set the variable to.

▼ Sample script (1)

```
# When the 1 key is pressed, set a variable.
0 1 <eps>                MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,-14.0
1 2 KEY|1                VALUE_SET|var|0
2 3 VALUE_EVENT_SET|var  SYNTH_START|mei|mei_voice_normal|Value set
3 1 SYNTH_EVENT_STOP|mei <eps>
```

▼ Syntax (2)

```
VALUE_SET|(variable alias)|(minimum value for random)|(maximum value for random)
```

[Arguments]
- *(variable alias)*

   A name for referencing the variable.

- *(minimum value for random)*

   The minimum value for generating the random value.

- *(maximum value for random)*

   The maximum value for generating the random value.

▼ Sample script (2)

```
# When the 1 key is pressed, set a variable to a random value.
0 1 <eps>                  MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,-14.0
1 2 KEY|1                  VALUE_SET|var|0|100
2 3 VALUE_EVENT_SET|var   SYNTH_START|mei|mei_voice_normal|Value set
3 1 SYNTH_EVENT_STOP|mei <eps>
```

▼ Related messages
VALUE_UNSET
VALUE_EVAL
VALUE_EVENT_SET
VALUE_EVENT_UNSET
VALUE_EVENT_EVAL

# VALUE_UNSET

▼ Description

Delete a variable.

When the variable is deleted, a VALUE_EVENT_UNSET message is output.

▼ Syntax

```
VALUE_UNSET|(variable alias)
```

[Arguments]

- *(variable alias)*

  The name of the variable to be deleted.

▼ Sample script

```
# Set variable var when the script starts, and when the 1 key is pressed, delete
var.
0 1 <eps>                 MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,-14.0
1 2 <eps>                 VALUE_SET|var|0
2 3 KEY|1                 VALUE_UNSET|var
3 4 VALUE_EVENT_UNSET|var SYNTH_START|mei|mei_voice_normal|Value unset
4 1 SYNTH_EVENT_STOP|mei  <eps>
```

▼ Related messages

VALUE_SET

VALUE_EVAL

VALUE_EVENT_SET

VALUE_EVENT_UNSET

VALUE_EVENT_EVAL

## VALUE_EVAL

▼ Description

Compare a variable with a value.

After the comparison, a VALUE_EVENT_EVAL message is output.

▼ Syntax

```
VALUE_EVAL|(variable alias)|(EQ or NE or LE or LT or GE or GT for evaluation)|(value)
```

[Arguments]

- *(variable alias)*

  The name of the variable to compare.

  Place it to the left of the inequality symbol.

- *(EQ or NE or LE or LT or GE or GT for evaluation)*

  The inequality to be used for comparing the variable and value.

  Use the notation in the following table.

| Notation | Inequality |
|:--------:|:----------:|
| EQ | = |
| NE | ≠ |
| LE | ≦ |
| LT | < |
| GE | ≧ |
| GT | > |

- *(variable alias)*

  The value to compare.

  Place this on the right side of the inequality.

▼ Sample script

```
# When the 1, 2, or 3 key is pressed, set a variable to 1, 2 or 3 respectively.

# The set value is compared (EQ) an a script is synthesized according to the results.

# 1 key: "Set to 1" is synthesized.

# 2 key: "Set to 2" is synthesized.

# 3 key: "Set to 3" is synthesized.

0 1 <eps>                       MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,-14.0

1 2 KEY|1                       VALUE_SET|v|1

1 2 KEY|2                       VALUE_SET|v|2

1 2 KEY|3                       VALUE_SET|v|3

2 3 VALUE_EVENT_SET|v           VALUE_EVAL|v|EQ|1

3 9 VALUE_EVENT_EVAL|v|EQ|1|TRUE  SYNTH_START|mei|mei_voice_normal|Set to 1.

3 4 VALUE_EVENT_EVAL|v|EQ|1|FALSE VALUE_EVAL|v|EQ|2

4 9 VALUE_EVENT_EVAL|v|EQ|2|TRUE  SYNTH_START|mei|mei_voice_normal|Set to 2.

4 5 VALUE_EVENT_EVAL|v|EQ|2|FALSE VALUE_EVAL|v|EQ|3

5 9 VALUE_EVENT_EVAL|v|EQ|3|TRUE  SYNTH_START|mei|mei_voice_normal|Set to 3.

5 1 VALUE_EVENT_EVAL|v|EQ|3|FALSE <eps>

9 1 SYNTH_EVENT_STOP|mei          <eps>
```

▼ Related messages

VALUE_SET

VALUE_UNSET

VALUE_EVENT_SET

VALUE_EVENT_UNSET

VALUE_EVENT_EVAL

# VALUE_EVENT_SET

▼ Description

Output when a variable has been set.

▼ Syntax

```
VALUE_EVENT_SET|(variable alias)
```

[Arguments]

- *(variable alias)*

   The name of variable set to the value.

▼ Sample script

```
# When the 1 key is pressed, a variable is set and then speech is synthesized.
0 1 <eps>                 MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,-14.0
1 2 KEY|1                 VALUE_SET|var|0
2 3 VALUE_EVENT_SET|var   SYNTH_START|mei|mei_voice_normal|Variable set
3 1 SYNTH_EVENT_STOP|mei <eps>
```

▼ Related messages

VALUE_SET

VALUE_UNSET

VALUE_EVAL

VALUE_EVENT_UNSET

VALUE_EVENT_EVAL

# VALUE_EVENT_UNSET

▼ Description

Output when a variable has been unset.

▼ Syntax

```
VALUE_EVENT_UNSET|(variable alias)
```

[Arguments]

- *(variable alias)*

  The name of the variable that was unset.

▼ Sample script

```
# Set variable var when the script starts, then when the 1 key is pressed,
# unset the variable and then synthesize speech.
0 1 <eps>                MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,-14.0
1 2 <eps>                VALUE_SET|var|0
2 3 KEY|1                VALUE_UNSET|var
3 4 VALUE_EVENT_UNSET|var SYNTH_START|mei|mei_voice_normal|Variable unset
4 1 SYNTH_EVENT_STOP|mei  <eps>
```

▼ Related messages

VALUE_SET

VALUE_UNSET

VALUE_EVAL

VALUE_EVENT_SET

VALUE_EVENT_EVAL

## VALUE_EVENT_EVAL

▼ Description

Output when a comparison of variable and value has been done.

▼ Syntax

```
VALUE_EVENT_EVAL|(variable alias)|(EQ or NE or LE or LT or GE or GT for
evaluation)|(value)|(TRUE or FALSE)
```

[Arguments]

- *(variable alias)*

   The name of the variable that was compared.


- *(EQ or NE or LE or LT or GE or GT for evaluation)*

   The inequality used to compare variable and value.

   The following notation is used.

| Notation | Inequality |
|:--------:|:----------:|
| EQ | = |
| NE | ≠ |
| LE | ≦ |
| LT | < |
| GE | ≧ |
| GT | > |


- *(value)*

   The value used for comparison.


- *(TRUE or FALSE)*

   The comparison result.

   TRUE or FALSE.

▼ Sample script

```
# When the 1, 2, or 3 key is pressed, a variable is set to the values 1, 2, or 3 respectively.

# Comparisons (EQ) are made with the set value and speech is synthesized accordingly.

# 1 key: "Set to 1" is synthesized.

# 2 key: "Set to 2" is synthesized.

# 3 key: "Set to 3" is synthesized.

0 1 <eps>                    MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,-14.0

1 2 KEY|1                    VALUE_SET|v|1

1 2 KEY|2                    VALUE_SET|v|2

1 2 KEY|3                    VALUE_SET|v|3

2 3 VALUE_EVENT_SET|v        VALUE_EVAL|v|EQ|1

3 9 VALUE_EVENT_EVAL|v|EQ|1|TRUE  SYNTH_START|mei|mei_voice_normal|Set to 1.

3 4 VALUE_EVENT_EVAL|v|EQ|1|FALSE VALUE_EVAL|v|EQ|2

4 9 VALUE_EVENT_EVAL|v|EQ|2|TRUE  SYNTH_START|mei|mei_voice_normal|Set to 2.

4 5 VALUE_EVENT_EVAL|v|EQ|2|FALSE VALUE_EVAL|v|EQ|3

5 9 VALUE_EVENT_EVAL|v|EQ|3|TRUE  SYNTH_START|mei|mei_voice_normal|Set to 3.

5 1 VALUE_EVENT_EVAL|v|EQ|3|FALSE <eps>

9 1 SYNTH_EVENT_STOP|mei      <eps>
```

▼ Related messages
VALUE_SET
VALUE_UNSET
VALUE_EVAL
VALUE_EVENT_SET
VALUE_EVENT_UNSET

# TIMER_START

▼ Description

Start a timer (to output a message after a set time).

When the timer starts and stops, TIMER_EVENT_START and TIMER_EVENT_STOP messages respectively are output.

▼ Syntax

```
TIMER_START|(count down alias)|(value)
```

[Arguments]

- *(count down alias)*

   A name for referring to the timer.

- *(value)*

   The timer interval to set.

   Enter in units of 0.1 s.

▼ Sample script

```
# When the 1 key is pressed, start a timer to speak after 3 sec.
0 1 KEY|1                      TIMER_START|wait|30
1 2 TIMER_EVENT_STOP|wait SYNTH_START|mei|mei_voice_normal|3 seconds passed
```

▼ Related messages

TIMER_STOP

TIMER_EVENT_START

TIMER_EVENT_STOP

# TIMER_STOP

▼ Description

Stop a timer.

When the timer stops, TIMER_EVENT_STOP message is output.

▼ Syntax

```
TIMER_STOP|(count down alias)
```

[Arguments]

- *(count down alias)*

   The name of the timer to stop.

▼ Sample script

```
# When the 1 key is pressed, start a timer to speak after 5 s.
# Then, if the 2 key is pressed before 5 s passes, stop the timer.
0 1 KEY|1                    TIMER_START|wait|5
1 2 TIMER_EVENT_STOP|wait SYNTH_START|mei|mei_voice_normal|5 seconds passed
1 3 KEY|2                    TIMER_STOP|wait
3 4 TIMER_EVENT_STOP|wait SYNTH_START|mei|mei_voice_normal|Timer stopped
```

▼ Related messages

TIMER_START

TIMER_EVENT_START

TIMER_EVENT_STOP

# TIMER_EVENT_START

▼ Description

Output when a timer starts.

▼ Syntax

```
TIMER_EVENT_START|(count down alias)
```

[Arguments]

- *(count down alias)*

  The name of the timer that started.

▼ Sample script

```
# When the 1 key is pressed, start a timer and wait for TIMER_EVENT_START.
# Then wait for either TIMER_EVENT_STOP or the 2 key to be pressed.
0 1 KEY|1                   TIMER_START|wait|5
1 2 TIMER_EVENT_START|wait <eps>
2 3 TIMER_EVENT_STOP|wait SYNTH_START|mei|mei_voice_normal|5 seconds passed
2 4 KEY|2                   TIMER_STOP|wait
4 5 TIMER_EVENT_STOP|wait  SYNTH_START|mei|mei_voice_normal|Timer stopped
```

▼ Related messages

TIMER_START

TIMER_STOP

TIMER_EVENT_STOP

# TIMER_EVENT_STOP

▼ Description

Output when a timer is stopped.

▼ Syntax

```
TIMER_EVENT_STOP|(count down alias)
```

[Arguments]

- *(count down alias)*

  The name of the stopped timer.

▼ Sample script

```
# When the 1 key is pressed, start a timer to speak after 5 seconds.
# If the 2 key is pressed before 5 s passes, stop the timer.
0 1 KEY|1                 TIMER_START|wait|5
1 2 TIMER_EVENT_STOP|wait SYNTH_START|mei|mei_voice_normal|5 seconds passed.
1 3 KEY|2                 TIMER_STOP|wait
3 4 TIMER_EVENT_STOP|wait SYNTH_START|mei|mei_voice_normal|Timer stopped.
```

▼ Related messages

TIMER_START

TIMER_STOP

TIMER_EVENT_START

# PLUGIN_ENABLE

▼ Description

Enable a plugin.

When the plugin has been enabled, a PLUGIN_EVENT_ENABLE message is output.

▼ Syntax

```
PLUGIN_ENABLE|(plugin name)
```

[Arguments]

- *(plugin name)*

 The name of the plugin to enable.

▼ Sample script

```
# When the 1 key is pressed, enable the LookAt plugin.
# When the 2 key is pressed, disable LookAt.
0 1 <eps> MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,-14.0
1 2 <eps> MOTION_ADD|mei|base|Motion¥mei_wait¥mei_wait.vmd|FULL|LOOP
2 2 KEY|1 PLUGIN_ENABLE|LookAt
2 2 KEY|2 PLUGIN_DISABLE|LookAt
```

▼ Notes

1. The names of standard plugins included with MMDAgent are:
    Audio, Julius, LookAt, Open_JTalk, Variables, VIManager, WindowController

▼ Related messages

PLUGIN_DISABLE

PLUGIN_EVENT_ENABLE

PLUGIN_EVENT_DISABLE

# PLUGIN_DISABLE

▼ Description

Disable a plugin.

When a plugin has been disabled, a PLUGIN_EVENT_DISABLE message is output.

▼ Syntax

```
PLUGIN_DISABLE|(plugin name)
```

[Arguments]

- *(plugin name)*

   The name of the plugin to disable.

▼ Sample script

```
# When the 1 key is pressed, enable the LookAt plugin.
# When the 2 key is pressed, disable the LookAt plugin.
0 1 <eps> MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,-14.0
1 2 <eps> MOTION_ADD|mei|base|Motion¥mei_wait¥mei_wait.vmd|FULL|LOOP
2 2 KEY|1 PLUGIN_ENABLE|LookAt
2 2 KEY|2 PLUGIN_DISABLE|LookAt
```

▼ Notes

1.  The names of standard plugins included with MMDAgent are:
    Audio, Julius, LookAt, Open_JTalk, Variables, VIManager, WindowController

▼ Related messages

PLUGIN_ENABLE

PLUGIN_EVENT_ENABLE

PLUGIN_EVENT_DISABLE

# PLUGIN_EVENT_ENABLE

▼ Description

Output when a plugin is enabled.

▼ Syntax

```
PLUGIN_EVENT_ENABLE|(plugin name)
```

[Arguments]

- *(plugin name)*

  The name of the plugin that was enabled.

▼ Sample script

```
# When the 1 key is pressed, enable a plugin and then speak.
# When the 2 key is pressed, disable the plugin and then speak.
0 1 <eps>                 MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,-14.0
1 2 <eps>                 MOTION_ADD|mei|base|Motion¥mei_wait¥mei_wait.vmd|FULL|LOOP
2 3 KEY|1                 PLUGIN_ENABLE|LookAt
3 2 PLUGIN_EVENT_ENABLE|LookAt  SYNTH_START|mei|mei_voice_normal|Plugin enabled
2 4 KEY|2                 PLUGIN_DISABLE|LookAt
4 2 PLUGIN_EVENT_DISABLE|LookAt SYNTH_START|mei|mei_voice_normal|Plugin disabled
```

▼ Notes

1.  The names of standard plugins included with MMDAgent are:
    Audio, Julius, LookAt, Open_JTalk, Variables, VIManager, WindowController

▼ Related messages

PLUGIN_ENABLE

PLUGIN_DISABLE

PLUGIN_EVENT_DISABLE

# PLUGIN_EVENT_DISABLE

▼ Description

Output when a plugin is disabled.

▼ Syntax

```
PLUGIN_EVENT_DISABLE|(plugin name)
```

[Arguments]

- *(plugin name)*

  The name of the plugin that was disabled.

▼ Sample script

```
# When the 1 key is pressed, enable a plugin and then speak.
# When the 2 key is pressed, disable the plugin and then speak.
0 1 <eps>                     MODEL_ADD|mei|Model¥mei¥mei.pmd|0.0,0.0,-14.0
1 2 <eps>                     MOTION_ADD|mei|base|Motion¥mei_wait¥mei_wait.vmd|FULL|LOOP
2 3 KEY|1                     PLUGIN_ENABLE|LookAt
3 2 PLUGIN_EVENT_ENABLE|LookAt SYNTH_START|mei|mei_voice_normal|Plugin enabled
2 4 KEY|2                     PLUGIN_DISABLE|LookAt
4 2 PLUGIN_EVENT_DISABLE|LookAt SYNTH_START|mei|mei_voice_normal|Plugin disabled
```

▼ Notes

1.  The names of standard plugins included with MMDAgent are:
    Audio, Julius, LookAt, Open_JTalk, Variables, VIManager, WindowController

▼ Related messages

PLUGIN_ENABLE

PLUGIN_DISABLE

PLUGIN_EVENT_ENABLE

# DRAGANDDROP

▼ Description

Output when a file is dragged and dropped onto MMDAgent.

MMDAgent implements functionality to perform operations based on file type when files of particular type are dragged and dropped onto it. Note that since this message includes the full path of the dropped file and the coordinates where it was dropped, it is difficult to use with the state transitions in an fst file, so we have omitted an example here.

▼ Syntax

```
DRAGANDDROP|(file name)|(px)|(py)
```

[Arguments]

- *(file name)*

  The full path of the dropped file.

- *(px)*

  The X coordinate where the file was dropped.

  Given in pixels on the screen.

- *(py)*

  The Y coordinate where the file was dropped.

  Given in pixels on the screen.

# KEY

▼ Description

Output when a key is pressed.

▼ Syntax

```
KEY|(key name)
```

[Arguments]

- *(key name)*

  The name of the input key.

▼ Sample script

```
# When the 1 key is pressed, say "The 1 key was pressed".
# When the a key is pressed, say "The a key was pressed".
0 0 KEY|1 SYNTH_START|mei|mei_voice_normal|The 1 key was pressed
0 0 KEY|a SYNTH_START|mei|mei_voice_normal|The a key was pressed
```

▼ Notes

1. How to check the names of input keys

   Display the debug screen (D key) to see which keys that are pressed.

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# EXECUTE

▼ Description

Run an external program.

When a file, such as a text file or URL, is entered, the corresponding software is launched according to OS settings.

▼ Syntax

```
EXECUTE|(file name)
```

[Arguments]

- *(file name)*

  The path of the file to run.

  Specify a path relative to the current directory or an absolute path.

▼ Sample script

```
# When the 1 key is pressed, run MMDAgent.ext in a separate process.
# When the 2 key is pressed, open http://www.mmdagent.jp.
0 0 KEY|1 EXECUTE|MMDAgent.exe
0 0 KEY|2 EXECUTE|http://www.mmdagent.jp
```

# KEY_POST

▼ Description

Send keyboard input to another application.

Behavior is OS dependent.

▼ Syntax

```
KEY_POST|(window class name)|(key name)|(ON or OFF for shift-key)|(ON or
OFF for ctrl-key)|(On or OFF for alt-key)
```

[Arguments]

- *(window class name)*

   The name of the application to send keyboard input to.

- *(key name)*

   The name of the key to send.

- *(ON or OFF for shift-key)*

   Whether to send the [Shift] key or not.

   ON: send [Shift], OFF: do not send [Shift].

- *(ON or OFF for ctrl-key)*

   Whether to send the [Ctrl] key or not.

   ON: send [Ctrl], OFF: do not send [Ctrl].

- *(On or OFF for alt-key)*

   Whether to send the [Alt] key or not.

   ON: send [Alt], OFF: do not send [Alt].

▼ Sample script

```
# When the 1 key is pressed, send key input to another application.
0 0 KEY|1 KEY_POST|SampleWindow|a|OFF|OFF|OFF
```

# 6. mdf Files

## Overview

This file defines common system settings for MMDAgent.

If an mdf file is not specified as an argument to MMDAgent.exe, the mdf file in the system directory is loaded.

If an mdf file is specified, the mdf file in the system directory is loaded first, and then the specified mdf file is loaded from the content directory. If the same items are specified in both, the values in the mdf file in the content directory are used.

## Syntax

Each setting is specified on a separate line.

Lines beginning with "#" are treated as comments.

```
(Item name)=(Setting value)
```

▼Example

The following is an example with settings related to cell shading.

```
# Cell shading settings
use_cartoon_rendering=true
use_mmd_like_cartoon=true
cartoon_edge_width=0.35
cartoon_edge_step=1.2
cartoon_edge_selected_color=1.0,0.0,0.0,1.0
```

# Configuration items

## use_cartoon_rendering

▼ Description

Turn cell shading ON or OFF.

true: Cell shading ON,  false: Cell shading OFF.

▼Example (Default value)

```
use_cartoon_rendering=true
```

## use_mmd_like_cartoon

▼ Description

Enable MMD compatibility when cell shading is ON.

true: MMD compatibility ON, false: MMD compatibility OFF.

▼ Example (default value)

```
use_mmd_like_cartoon=true
```

## cartoon_edge_width

▼ Description

Set the edge width when using cell shading is ON.

[Setting range]

0.001 to 1000.0

▼ Example (default value)

```
cartoon_edge_width=0.7
```

## cartoon_edge_step

▼ Description

Set the edge step value when cell shading is ON.

[Setting range]

1.0 to 10.0

▼ Example (default value)

```
cartoon_edge_step=1.2
```

## cartoon_edge_selected_color

▼ Description

Set the edge color when cell shading is ON.

Specify red, green, blue, and alpha values separated by commas.

[Setting range]

0.0 to 1.0

▼ Example (default values)

```
cartoon_edge_selected_color=1.0,0.0,0.0,1.0
```

## camera_rotation

▼ Description

Specify the 3D camera rotation.

Specify X, Y, and Z axis rotations separated by commas.

[Setting range]

0.001 to 1000.0

▼ Example (default value)

```
camera_rotation=0.0,0.0,0.0
```

## camera_transition

▼ Description

Specify the camera observation point.

Specify X, Y, and Z coordinates separated by commas.

[Setting range]

-10000.0 to 10000.0

▼ Example (default value)

```
camera_transition=0.0,13.0,0.0
```

## camera_distance

▼ Description

Specify the distance between camera and observation point.

[Setting range]

0.0 to 100000.0

▼ Example (default value)

```
camera_distance=100.0
```

## camera_fovy

▼ Description

Specify the camera field of view.

[Setting range]

0.0 to 180.0

▼ Example (default value)

```
camera_fovy=16.0
```

## stage_size

▼ Description

Specify the stage size.

Specify width, depth, and height values separated by commas.

[Setting range]

0.001 to 1000.0

▼ Example (default value)

```
stage_size=25.0,25.0,40.0
```

## show_fps

▼ Description

Turn FPS display ON or OFF.

true: FPS display ON, false: FPS display OFF.

▼ Example (default value)

```
show_fps=true
```

## fps_position

▼ Description

Specify display coordinates when FPS display is ON.

Specify X, Y, and Z coordinates separated by commas.

▼ Example (default value)

```
fps_position=-2.5,22.0,3.0
```

## window_size

▼ Description

Specify the window size when MMDAgent is launched.

Specify width and height separated by commas.

[Setting range]

1 to 4096

▼ Example (default value)

```
window_size=600,600
```

## full_screen

▼ Description

Set MMDAgent to launch in full-screen mode.

true: Full screen ON, false: Full screen OFF.

▼ Example (default value)

```
full_screen=false
```

## log_size

▼ Description

Set the size of the log window.

Specify width and height separated by commas.

[Setting range]

1 to 4096

▼ Example (default value)

```
log_size=80,30
```

## log_position

▼ Description

Set the position to display the log window.

Specify X, Y, and Z coordinates separated by commas.

▼ Example (default value)

```
log_position=-17.5,3.0,-15.0
```

## log_scale

▼ Description

Set a magnification for the log window.

[Setting range]

0.001 to 1000.0

▼ Example (default value)

```
log_scale=1.0
```

## light_direction

▼ Description

Specify the light source in homogeneous coordinates.

Specify X, Y, Z, and W separated by commas.

When W is 0, the light source is at infinity in the direction (X, Y, Z) (parallel light source). Otherwise, the light source is located at (X/W, Y/W, W/WZ).

▼ Example (default value)

```
light_direction=0.5,1.0,0.5,0.0
```

## light_intensity

▼ Description

Set the intensity of the light source.

[Setting range]
0.0 to 1.0

▼ Example (default value)

```
light_intensity=0.6
```

## light_color

▼ Description

Specify the color of the light source.
Specify red, green, and blue separated by commas.

[Setting range]
0.0 to 1.0

▼ Example (default value)

```
light_color=1.0,1.0,1.0
```

## campus_color

▼ Description

Set the background color.
Specify red, green, and blue separated by commas.

[Setting range]
0.0 to 1.0

▼ Example (default value)

```
campus_color=0.0,0.0,0.2
```

## max_multi_sampling

▼ Description

Set the maximum for multi-sampling in OpenGL.

[Setting range]

0 to 32

▼ Example (default value)

```
max_multi_sampling=4
```

## motion_adjust_time

▼ Description

Set the delay for starting motion.

Specify in seconds.

[Setting range]

-10.0 to 10.0

▼ Example (default value)

```
motion_adjust_time=0.0
```

## lypsync_priority

▼ Description

Specify priority for lip-sync motion.

[Setting range]

-1000.0 to 1000.0

▼ Example (default value)

```
lypsync_priority=100.0
```

## bullet_fps

▼ Description

Set the frame rate for physical operations.

Specify in frames/s.

[Setting range]

1 to 120

▼ Example (default value)

```
bullet_fps=120
```

## gravity_factor

▼ Description

Specify a gravity scale factor for physical operations.

[Setting range]

0.0 to 1024.0

▼ Example (default value)

```
gravity_factor=2.0
```

## rotate_step

▼ Description

Set a coefficient (sensitivity) for speed of rotation operations.

[Setting range]

0.001 to 180.0

▼ Example (default value)

```
rotate_step=4.5
```

## translate_step

▼ Description

Set a coefficient (sensitivity) for speed of parallel motion operations.

[Setting range]
0.001 to 1000.0

▼ Example (default value)

```
translate_step=0.5
```

## distance_step

▼ Description

Set a coefficient (sensitivity) for speed of changes to the distance from camera to observation point.

[Setting range]
0.001 to 1000.0

▼ Example (default value)

```
distance_step=4.0
```

## fovy_step

▼ Description

Set a coefficient (sensitivity) for speed of changes to camera field of view.

[Setting range]
0.001 to 1000.0

▼ Example (default value)

```
fovy_step=1.0
```

## use_shadow_mapping

▼ Description

Turn shadow mapping ON or OFF.

true: Shadow mapping ON, false: Shadow mapping OFF.

▼ Example (default value)

```
use_shadow_mapping=false
```

## shadow_mapping_texture_size

▼ Description

Set the texture size for shadow mapping.

[Setting range]

1 to 8192

▼ Example (default value)

```
shadow_mapping_texture_size=1024
```

## shadow_mapping_self_density

▼ Description

Set the density of shadows that models cast on themselves when shadow mapping is ON.

[Setting range]

0.0 to 1.0

▼ Example (default value)

```
shadow_mapping_self_density=1.0
```

# shadow_mapping_floor_density

▼ Description

Set the density of shadows cast on the floor when shadow mapping is ON.

[Setting range]
0.0 to 1.0

▼ Example (default value)

```
shadow_mapping_floor_density=0.5
```

# shadow_mapping_light_first

▼ Description

Change the rendering order for sun direction and shadows when shadow mapping is ON.
true: sun rendering first, false: shadow rendering first.

[Notes]
When using a background PMD and the whole background is a shadow, setting true improves the situation, but shadow rendering is unnecessary, so this increases the computation time required.

▼ Example (default value)

```
shadow_mapping_light_first=true
```

# display_comment_time

▼ Description

Set the time that comments in the PMD model will be displayed upon startup.
Specify in seconds.

[Setting range]
0.0 to 30.0

▼ Example (default value)

```
display_comment_time=5.0
```

# max_num_model

▼ Description

Set the maximum number of models displayed.

[Setting range]
1 to 1024

▼ Example (default value)

```
max_num_model=10
```

# 7. ojt Files

## Overview

These files define the voice file and utterance style used for speech synthesis.

## Syntax

Specify the number of voice file definitions, the voice file paths, the number of utterance style definitions, and the utterance style definitions with configuration values in that order. Lines beginning with "#" are treated as comments.

▼ Example
The following is an example defining seven utterance styles (normal, angry, bashful, fast, slow, high, and low) based on three voice files (normal, angry, and bashful).

```
# Number of voice file definitions
3
# Voice file paths
Voice\normal.htsvoice
Voice\angry.htsvoice
Voice\bashful.htsvoice
# Number of utterance style definitions
7
# Utterance style names and configuration values
normal  1.0 0.0 0.0 1.0 0.0 0.0 1.0 0.0 0.0 1.0  0.0 0.55 1.0
angry   0.0 1.0 0.0 0.0 1.0 0.0 0.0 1.0 0.0 1.1 -0.5 0.55 1.1
bashful 0.0 0.0 1.0 0.0 0.0 1.0 0.0 0.0 1.0 1.0  0.5 0.55 0.9
fast    1.0 0.0 0.0 1.0 0.0 0.0 1.0 0.0 0.0 2.0  1.0 0.55 1.0
slow    1.0 0.0 0.0 1.0 0.0 0.0 1.0 0.0 0.0 0.5  1.0 0.55 1.0
high    1.0 0.0 0.0 1.0 0.0 0.0 1.0 0.0 0.0 1.0  4.0 0.55 1.0
low     1.0 0.0 0.0 1.0 0.0 0.0 1.0 0.0 0.0 1.0 -2.0 0.55 1.0
```

▼ Description

1. Number of voice file definitions
   Indicates the number of voice files used.

2. Voice file paths
   Specify paths of each voice file with a path relative to the current directory or an absolute path.

3. Number of utterance style definitions
   Specify the number of utterance style definitions.

4. Utterance style names and configuration values
   Specify configuration values for each utterance style with the following syntax, one per line.
   [space] or [tab] can be used to separate values in the syntax..

   ```
   (Utterance style name) (Voice quality weighting)×n (Pitch weighting)×n
   (Speech speed weighting)×n (Overall speech speed) (Overall pitch)
   (Overall voice quality) (Overall volume)
   ```

   * n is the number of voice files defined. Weightings are applied in the same order that the voice file paths are specified.

| Item | Description | Value range |
|------|-------------|-------------|
| **Utterance style name** | Specify the name (alias) for this utterance style. | - |
| **Voice quality weighting × n** | Enter a weighting for voice quality for each voice. Specify such that the sum of values is 1.0. | 0.0 to 1.0 |
| **Pitch weighting × n** | Enter a pitch weighting for each voice. Specify such that the sum of values is 1.0. | 0.0 to 1.0 |
| **Speech speed weighting × n** | Enter a speech speed weighting for each voice. Specify such that the sum of values is 1.0. | 0.0 to 1.0 |
| **Overall speech speed** | Enter an overall speech speed for the utterance style | 0.1 to 10.0 Default: 1.0 |
| **Overall pitch** | Enter an overall pitch value for the utterance style | -12.0 to 12.0 Default: 0.0 |

| Overall voice quality | Enter an overall voice quality value for the utterance style. | -0.9 to 0.9 Default: 0.55 Female voices < 0.55 < Male voices |
|---|---|---|
| **Overall volume** | Enter an overall volume for the utterance style. | 0.1 to 10.0 Default: 1.0 |

# 8. dic Files

## Overview

These are user dictionary files that define words to be recognized that are not in the system dictionary.
Any user dictionary file can be set by calling RECOG_MODIFY|USERDICT_SET in an fst file.

▼ Location of system dictionary file
*<SysDir>/AppData/Julius/lang_m/web.60k.htkdic*

## Syntax

Specify data for words to add, one-per-line, using the following syntax.
Syntax elements can be separated using [space] or [tab].

```
(String expressing word occurrence) @(occurrence probability) (Word
registration data) [(recognition result)] (phoneme sequence for
pronunciation)
```

▼Example
An example for registering the name Mei in a user dictionary is given below.

```
花子:ハナコ:花子:513 @2.0 メイ:メイ:メイ:513 [メイ] m e i
```

▼ Description
1. String expressing word occurrence (1st field)
   Find a word in the system dictionary that is used similarly to how the word being registered is used, and enter the same contents as in the system dictionary for that word. If such a word is not known, <unk> may also be entered here.

2. @Occurrence probability (2nd field)
   Enter the occurrence probability (logarithmic probability) for the word being registered. The default value is 0. The larger the value, the higher the probability of being recognized, but the possibility of false-positive recognition also increases.

3. Word registration data (3rd field)

Enter registered word data in the form, descriptor:pronunciation:basic form:part-of-speech number (the value set in the 1$^{st}$ field). If this data is not known, <unk> may also be entered here.

4. [Recognition result] (4$^{th}$ field)
   Enter the word that will be output as the recognition result.

5. Phoneme sequence for pronunciation (5$^{th}$ field)
   Enter the pronunciation of the registered word in terms of phoneme correspondence table for speech recognition.

# 9. lip Files

## Overview

These files define mouth-shape motion for a model file.
They are stored with the name <model file name>.lip in the same directory as the model file. Note that if an applicable lip file is not present, the system lip file will automatically be loaded.

▼ System lip file location
*<SysDir>/AppData/lip.txt*

## Syntax

Enter the number of mouth-shape motion definitions, the mouth-shape motion definition names, the number of phonemes, the phoneme names and the mouth motion weightings. Lines beginning with "#" are treated as comments.

▼ Example
An example which defines four phonemes (a, i, u, g) based on three mouth-shape motions (あ、い、う) is given below.

```
# Number of mouth-shape motion definitions
3
# Mouth-shape motion definition names
あ
い
う
# Number of phonemes
4
# Phoneme names and mouth-shape motion weightings
a 1.0 0.0 0.0
i 0.0 1.0 0.0
u 0.0 0.0 1.0
g 0.1 0.3 0.2
```

▼ Description

1.  Number of mouth-shape motion definitions
    Enter the number of mouth-shape motion definitions.

2.  Mouth-shape motion definition names
    Enter the names of mouth shape motion definitions used in the model  file.

3.  Number of phonemes
    Enter the number of phonemes being defined.

4.  Phoneme names and mouth-shape motion weightings
    Values for each phoneme are entered with the following syntax, one-per-line.
    In the syntax, [space] or [tab] can be used as a separator.

    ```
    (Phoneme name) (mouth-shape motion weighting)×n
    ```

    * n is the number of mouth-shape motion definitions. These are applied in the
    order of the mouth-shape motion name definitions.

| Item | Description | Value range |
|---|---|---|
| **Phoneme name** | Enter a phoneme name according to the phoneme correspondence table for speech synthesis. | - |
| **Mouth-shape motion weighting×n** | Enter the ratio for each mouth-shape motion. | 0.0 to 1.0 |

[Notes]
If the sum of the mouth-shape motion weightings (ratios) does not equal 1.0,
the values are interpreted as percentages when generating mouth-shape
motions.

# 10.  lab Files

## Overview

These files define information for making a model lip-sync when playing a WAV file. When SOUND_START is executed, the file <WAV file name>.lab in the same directory as the WAV file is loaded to make the model lip sync.

## Syntax

The start and end times for lip-syncing of each phoneme are specified  with the following syntax, one-per-line. In the syntax, [space] or [tab] are used as separators.

```
(Start time) (End time) (Phoneme)
```

▼ Example
The following is the data for lip-syncing "こんにちは" ("hello").

```
0       1050000 k
1050000 2200000 o
2200000 2650000 N
2650000 3150000 n
3150000 3950000 i
3950000 4750000 ch
4750000 5300000 i
5300000 5850000 w
5850000 7700000 a
```

▼ Description

1. Start time (1$^{st}$ field)

   Enter the delay before starting lip-syncing.

   Specify in units of 100 ns.


2. End time (2$^{nd}$ field)

   Enter the time lip-syncing should end.

   Specify in units of 100 ns.


3. Phoneme (3$^{rd}$ field)

   Specify the phoneme according to the phoneme correspondence table for speech synthesis.


** Warning **

With Version 1.5, if a lab file exceeds 339 phonemes, MMDAgent will crash when it is run.

# 11. Phoneme support tables

## Overview

Tables showing correspondences of mora and phonemes. There are two types, one for speech recognition, and the other for speech synthesis.

▼Mora and phonemes

| Mora | A unit of articulation in a language. Japanese basically has one mora per kana character, but dipthongs such as "ちゃ" (cha) also count as one mora.<br><br>[E.g.]<br>Expressing "めいちゃん" with mora consists of 4 mora:<br>  "me i cha N". |
| --- | --- |
| **Phoneme** | A unit of articulation smaller than the mora. One mora consists of one or more phonemes.<br><br>[E.g.]<br>Expressing "めいちゃん" with phonemes consists of 6 phonemes:<br>  "m e i ch a N". |

# Phoneme correspondence table for speech recognition

The following table shows correspondences of phonemes and mora for speech recognition.

| 正音 | | | | |
|---|---|---|---|---|
| ア | イ | ウ | エ | オ |
| a | i | u | e | o |
| カ | キ | ク | ケ | コ |
| k a | k i | k u | k e | k o |
| サ | シ | ス | セ | ソ |
| s a | sh i | s u | s e | s o |
| タ | チ | ツ | テ | ト |
| t a | ch i | ts u | t e | t o |
| ナ | ニ | ヌ | ネ | ノ |
| n a | n i | n u | n e | n o |
| ハ | ヒ | フ | ヘ | ホ |
| h a | h i | f u | h e | h o |
| マ | ミ | ム | メ | モ |
| m a | m i | m u | m e | m o |
| ヤ | | ユ | | ヨ |
| y a | | y u | | y o |
| ラ | リ | ル | レ | ロ |
| r a | r i | r u | r e | r o |
| ワ | | ヲ | | ン |
| w a | | o | | N |

| 濁音・半濁音 | | | | |
|---|---|---|---|---|
| ガ | ギ | グ | ゲ | ゴ |
| g a | g i | g u | g e | g o |
| ザ | ジ | ズ | ゼ | ゾ |
| z a | z i | z u | z e | z o |
| ダ | ヂ | ヅ | デ | ド |
| d a | z i | z u | d e | d o |
| バ | ビ | ブ | ベ | ボ |
| b a | b i | b u | b e | b o |
| パ | ピ | プ | ペ | ポ |
| p a | p i | p u | p e | p o |

| 特殊な音素 | | | |
|---|---|---|---|
| 促音（っ） | q | （例）ラッコ | r a q k o |
| 長音（ー） | : | （例）チーター | ch i: t a: |

| 拗音 | | | | |
|---|---|---|---|---|
| キャ | | キュ | | キョ |
| ky a | | ky u | | ky o |
| シャ | | シュ | シェ | ショ |
| sh a | | sh u | sh e | sh o |
| チャ | | チュ | チェ | チョ |
| ch a | | ch u | ch e | ch o |
| ニャ | | ニュ | | ニョ |
| ny a | | ny u | | ny o |
| ヒャ | | ヒュ | | ヒョ |
| hy a | | hy u | | hy o |
| ミャ | | ミュ | | ミョ |
| my a | | my u | | my o |
| リャ | | リュ | | リョ |
| ry a | | ry u | | ry o |
| ギャ | | ギュ | | ギョ |
| gy a | | gy u | | gy o |
| ジャ | | ジュ | ジェ | ジョ |
| j a | | j u | j e | j o |
| ビャ | | ビュ | | ビョ |
| by a | | by u | | by o |
| ピャ | | ピュ | | ピョ |
| py a | | py u | | py o |
| ファ | フィ | フュ | フェ | フォ |
| f a | f i | hy u | f e | f o |
| | ウィ | | ウェ | ウォ |
| | w i | | w e | w o |
| ヴァ | ヴィ | | ヴェ | ヴォ |
| b a | b i | | b e | b o |
| ツァ | ツィ | | ツェ | ツォ |
| ts a | ts i | | ts e | ts o |
| | ティ | テュ | | |
| | t i | t u | | |
| | ディ | デュ | | |
| | d i | d u | | |
| | | ドゥ | | |
| | | d u | | |

# Phoneme correspondence table for speech synthesis

The following table shows correspondences of phonemes and mora for speech synthesis.

| 正音 | | | | |
|---|---|---|---|---|
| ア | イ | ウ | エ | オ |
| a | i | u | e | o |
| カ | キ | ク | ケ | コ |
| k a | k i | k u | k e | k o |
| サ | シ | ス | セ | ソ |
| s a | sh i | s u | s e | s o |
| タ | チ | ツ | テ | ト |
| t a | ch i | ts u | t e | t o |
| ナ | ニ | ヌ | ネ | ノ |
| n a | n i | n u | n e | n o |
| ハ | ヒ | フ | ヘ | ホ |
| h a | h i | f u | h e | h o |
| マ | ミ | ム | メ | モ |
| m a | m i | m u | m e | m o |
| ヤ | | ユ | | ヨ |
| y a | | y u | | y o |
| ラ | リ | ル | レ | ロ |
| r a | r i | r u | r e | r o |
| ワ | | ヲ | | ン |
| w a | | o | | N |
| 濁音・半濁音 | | | | |
| ガ | ギ | グ | ゲ | ゴ |
| g a | g i | g u | g e | g o |
| ザ | ジ | ズ | ゼ | ゾ |
| z a | j i | z u | z e | z o |
| ダ | ヂ | ヅ | デ | ド |
| d a | j i | z u | d e | d o |
| バ | ビ | ブ | ベ | ボ |
| b a | b i | b u | b e | b o |
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| p a | p i | p u | p e | p o |
| 促音 | | | | |
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| 拗音 | | | | |
|---|---|---|---|---|
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| シャ | | シュ | シェ | ショ |
| sh a | | sh u | sh e | sh o |
| チャ | | チュ | チェ | チョ |
| ch a | | ch u | ch e | ch o |
| ニャ | | ニュ | ニェ | ニョ |
| ny a | | ny u | ny e | ny o |
| ヒャ | | ヒュ | ヒェ | ヒョ |
| hy a | | hy u | hy e | hy o |
| ミャ | | ミュ | ミェ | ミョ |
| my a | | my u | my e | my o |
| リャ | | リュ | リェ | リョ |
| ry a | | ry u | ry e | ry o |
| ギャ | | ギュ | ギェ | ギョ |
| gy a | | gy u | gy e | gy o |
| ジャ | | ジュ | ジェ | ジョ |
| j a | | j u | j e | j o |
| ビャ | | ビュ | ビェ | ビョ |
| by a | | by u | by e | by o |
| ピャ | | ピュ | ピェ | ピョ |
| py a | | py u | py e | py o |
| ファ | フィ | | フェ | フォ |
| f a | f i | | f e | f o |
| | ウィ | | ウェ | ウォ |
| | w i | | w e | w o |
| ヴァ | ヴィ | ヴ | ヴェ | ヴォ |
| v a | v i | v u | v e | v o |
| ヴャ | | ヴュ | | ヴョ |
| by a | | by u | | by o |
| ツァ | ツィ | | ツェ | ツォ |
| ts a | ts i | | ts e | ts o |
| テャ | ティ | テュ | | テョ |
| ty a | t i | ty u | | ty o |
| デャ | ディ | デュ | デェ | デョ |
| by a | d i | by u | by e | by o |
| | | トゥ | | |
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