

# Iterator Process Tool

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## Introduction

This is a process tool plugin to allow one to iterate through records/assignments to execute process tool plugin. When iterating through individual record/assignment, the target process tool will be set to record/assignment context. This enables the use of hash variables under the correct context.

There are 2 plugins in this bundle to cater to different use cases.

1. Iterator Process Tool (Record)
2. Iterator Process Tool (Assignment)

If the records loaded are activity instances, please use the latter.

A plugin named "Database Query Process Tool" is also bundled together as a utility for loading records.

## Configurations

Iterator Process Tool (Record)

Load Records

Requires **collection of map** as dataset.  
If ID is an activity ID, please use "Iterator Process Tool (Assignment)" plugin, otherwise, use "Iterator Process Tool (Record)".

Iterator Method \*

Process Tool

✕ ▼

Iterator Process Tool

Database Query Process Tool

✕ ▼

Record ID \*

id

Execute Process Tool

For correct parsing of hash variable, replace # with \$\$ in your plugin for parsing to take place in correct context.  
EXAMPLE - Assignment mode, use \$\$form.request.name\$\$.  
EXAMPLE - Record mode, use \$\$form.request.name[@recordId@]\$\$.  
EXAMPLE - Retrieve values from iterator's dataset, use {columnName}.

Process Tool

Bean Shell Tool

✕ ▼

Advanced

Debug Mode

False

▼

Delay Between Execution ?

False

▼

## Load Records

Name	Description
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Iterator Method	<ul style="list-style-type: none"><li>• Method to load the dataset.</li><li>• Choose to load records either by using a <b>Process Tool</b> or from <b>Datalist</b></li></ul>
List	<ul style="list-style-type: none"><li>• Choose list to retrieve dataset from.</li><li>• This option is needed when "Iterator Method" is set to "Datalist".</li></ul>
Iterator Process Tool	<ul style="list-style-type: none"><li>• Choose a process tool to retrieve the dataset from.</li><li>• Process Tool must return a <b>collection of map</b> as dataset.</li></ul> <div><p><b>Sample Bean Shell Code</b></p><pre>import org.joget.commons.util.LogUtil; import java.util.Collection; import java.util.Map;  Collection col = new ArrayList();  Map map = new HashMap(); map.put("id", "1"); map.put("name", "Alice"); col.add(map);  map = new HashMap(); map.put("id", "2"); map.put("name", "George"); col.add(map);  return col;</pre></div> <ul style="list-style-type: none"><li>• You may use "Database Query Process Tool" bundled with this plugin to enter a SQL query string.</li><li>• This option is needed when "Iterator Method" is set to "Process Tool".</li></ul>
Record ID	<p>Specify which column to be used as record ID / primary key from the dataset.</p> <p>For example:-</p> <ul style="list-style-type: none"><li>• id</li></ul>

Execute Process Tool

Name	Description
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Process Tool	<ul style="list-style-type: none"> <li>With the dataset loaded, the plugin will iterate through each record and set the record or assignment as the context, and execute the process tool defined here.</li> <li>In the plugin configuration, when using hash variable, instead of using # to encapsulate, please replace # with \$\$ in your plugin for parsing to take place in the correct context. For examples:-             <ul style="list-style-type: none"> <li>Assignment mode, use <code>\$\$form.request.name\$\$</code>.                 <div> <div>Example</div> <div><code>\$\$form.request.name\$\$</code></div> </div> </li> <li>Record mode, use <code>\$\$form.request.name[@recordId@]\$\$</code>.                 <div> <div>Example</div> <div><code>\$\$form.request.name[@recordId@]\$\$</code></div> </div> </li> <li>Retrieve values from iterator's dataset, use {columnName}.                 <div> <div>Example</div> <div><code>{id}</code></div> </div> <div> <div>Example</div> <div><code>{name}</code></div> </div> </li> </ul> </li> </ul>
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Advanced

Name	Description
Debug Mode	Turn this mode on to print out debugging information to the server log.
Delay Between Execution	<ul style="list-style-type: none"> <li>Introduce a delay of 1 second between each record.</li> <li>This option is useful in some use cases such as sending out emails to prevent hitting the send limit per second.</li> </ul>

Download Plugin

Please visit <https://github.com/fojetoss/iterator-process-tool/releases> to download the plugin.

Examples

Send Daily Reminder on Upcoming Meeting within 2 days

1. In this example, we are making use of Scheduler plugin to trigger the plugin at 7am daily. Set the plugin to "Iterator Process Tool (Record)".

Job Name

Send Booking Reminder

Cron Expression

0 0 7 \* \* ? 2022

Syntax : Seconds Minutes Hours Day-of-Month Month Day-of-Week Year

App

Meeting Room Booking

Plugin

Iterator Process Tool (Record)

Configure Plugin

Save

Back

2. We can make use of "Database Query Process Tool" as the mean to pick up the records later. First, we will need to prepare the SQL to pick up bookings that are happening within 2 days from the time the job runs.

```
SELECT id, c_subject, c_name, c_room, c_date_from, c_date_from FROM app_fd_mrb_booking
WHERE c_date_from > NOW() AND DATE(c_date_from) < DATE_ADD(NOW(), INTERVAL 2 DAY)
/*pick up bookings happening within 2 days from now to send reminder*/
```

94

95 SELECT id, c\_subject, c\_name, c\_room, c\_date\_from, c\_date\_from FROM app\_fd\_mrb\_booking

96 WHERE c\_date\_from > NOW() AND DATE(c\_date\_from) < DATE\_ADD(NOW(), INTERVAL 2 DAY)

97 /\*pick up bookings happening within 2 days from now to send reminder\*/

3 lines, 241 characters selected

id	c_subject	c_name	c_room	c_date_from	c_date_from
2960b35...	Product Discussion	Hugo	44cefb42-289f-46db-b90c-6430224e8506	2022-03-16 09:00	2022-03-16 09:00
2960b35...	Project Debrief	Alexa	44cefb42-289f-46db-b90c-6430224e8506	2022-03-17 09:00	2022-03-17 09:00

Take note that it is important that we return the "id" column as it will be used to set the record context for hash variable to work.

3. This is the complete configurations.

### PLUGIN CONFIGURATION

Iterator Process Tool (Record)

Load Records

Requires collection of map as dataset.  
If ID is an activity ID, please use "Iterator Process Tool (Assignment)" plugin, otherwise, use "Iterator Process Tool (Record)".

Iterator Method \*

Process Tool

✕ ▼

Iterator Process Tool

Database Query Process Tool

✕ ▼

Record ID \*

id

Execute Process Tool

For correct parsing of hash variable in the context of the record being iterated, please replace # with \$\$ in the plugin configuration.  
If this plugin is part of a process flow, you can use hash variable symbol # as usual without replacing with \$\$ to parse based on the context of the process flow.  
EXAMPLE - \$form.request.name# will be either get parsed in the context of process flow if it is in one, or parsed while being in the Iterator record's context.  
EXAMPLE - \$form.request.name\$\$ will be parsed in the context of the Iterator record.  
  
To obtain current Iterator record ID, use @recordid@.  
EXAMPLE - \$form.request.name[@recordid@\$\$.  
  
To retrieve any value from current Iterator record row, use {columnName}.  
EXAMPLE - \$form.requestCategory.name[{categoryid}]\$\$.

Process Tool

Email Tool

✕ ▼

Advanced

Debug Mode

True

▼

Delay Between Execution ⓘ

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ITERATOR PROCESS TOOL (DATABASE QUERY PROCESS TOOL)

Configure Database Query Process Tool

SQL Query ⓘ

1 SELECT id, c\_subject, c\_name, c\_room, c\_date\_from, c\_date\_from FROM app\_fd\_mrb\_booking

2 WHERE c\_date\_from > NOW() AND DATE(c\_date\_from) < DATE\_ADD(NOW(), INTERVAL 2 DAY)

3 /\*pick up bookings happening within 2 days from now to send reminder\*/

Debug Mode

True

▼

PROCESS TOOL (EMAIL TOOL)

Configure Email Tool ⓘ

To (Specific email address)

#form.mrb\_booking.createdBy#

To (Participant ID)

CC

BCC

Subject

Booking {c\_subject}

Message

Hi #form.mrb\_booking.name#,

This is a reminder that your booking for #binder.options.jmrb.bookMeetingRoom.room# is happening soon.

Thanks.

HTML Content?

☐

4. Choose "Process Tool", followed by "Database Query Process Tool"

5. Set "id" in "Record ID" for the reason explained above.

6. In "Execute Process Tool", choose "Email Tool".

7. The email tool will be triggered once per record it iterates through.

8. Observe the server log or check emails to verify.

A screenshot of an email inbox interface. At the top, there are tabs for 'Primary', 'Social', 'Promotions', and 'Updates' (with a '1 new' badge). Below the tabs, two email entries are visible. The first email is from 'hugolim' with the subject 'Booking Project Debrief' and the body text 'Hi Alexa, This is a reminder that your booking for is happening soon. Thanks.' The second email is also from 'hugolim' with the subject 'Booking Product Discussion' and the body text 'Hi Hugo, This is a reminder that your booking for is happening soon. Thanks.' Both emails are timestamped '6:18 PM'.

```

INFO 15 Mar 2022 18:19:00 org.joget.marketplace.IteratorProcessToolRecord - Executing Iterator
INFO 15 Mar 2022 18:19:00 org.joget.marketplace.DatabaseQueryProcessTool - Query: SELECT id, c_subject,
c_name, c_room, c_date_from, c_date_from FROM app_fd_mrb_booking _WHERE c_date_from > NOW() AND DATE
(c_date_from) < DATE_ADD(NOW(), INTERVAL 2 DAY)/*pick up bookings happening within 2 days from now to
send reminder*/
INFO 15 Mar 2022 18:19:00 org.joget.marketplace.DatabaseQueryProcessTool - Rows returned:
[{c_subject=Product Discussion, c_room=44cefb42-289f-46db-b90c-6430224e8506, c_date_from=2022-03-16 09:
00, c_name=Hugo, id=2960b356-161d-451a-8c2d-85fdebf2e111}, {c_subject=Project Debrief, c_room=44cefb42-
289f-46db-b90c-6430224e8506, c_date_from=2022-03-17 09:00, c_name=Alexa, id=2960b356-161d-451a-8c2d-
85fdebf2e121}]
INFO 15 Mar 2022 18:19:00 org.joget.marketplace.IteratorProcessToolRecord - Iterator returned: 2 items:
[{c_subject=Product Discussion, c_room=44cefb42-289f-46db-b90c-6430224e8506, c_date_from=2022-03-16 09:
00, c_name=Hugo, id=2960b356-161d-451a-8c2d-85fdebf2e111}, {c_subject=Project Debrief, c_room=44cefb42-
289f-46db-b90c-6430224e8506, c_date_from=2022-03-17 09:00, c_name=Alexa, id=2960b356-161d-451a-8c2d-
85fdebf2e121}]
INFO 15 Mar 2022 18:19:00 org.joget.marketplace.IteratorProcessToolRecord - Iterating item: 1 - Record:
2960b356-161d-451a-8c2d-85fdebf2e111
INFO 15 Mar 2022 18:19:00 org.joget.marketplace.IteratorProcessToolRecord$1 - Executing tool:
executeProcessTool - org.joget.apps.app.lib.EmailTool
INFO 15 Mar 2022 18:19:00 org.joget.marketplace.IteratorProcessToolRecord$1 - Executed tool:
executeProcessTool - org.joget.apps.app.lib.EmailTool
INFO 15 Mar 2022 18:19:00 org.joget.apps.app.lib.EmailTool - EmailTool: Sending email
from=hugolim@outlook.com, to=hugo@joget.org, cc=, bcc=, subject=Booking Product Discussion
INFO 15 Mar 2022 18:19:02 org.joget.apps.app.lib.EmailTool - EmailTool: Sending email completed for
subject=Booking Product Discussion
INFO 15 Mar 2022 18:19:05 org.joget.marketplace.IteratorProcessToolRecord - Finished item 1 - Record:
2960b356-161d-451a-8c2d-85fdebf2e111
INFO 15 Mar 2022 18:19:05 org.joget.marketplace.IteratorProcessToolRecord - Iterating item: 2 - Record:
2960b356-161d-451a-8c2d-85fdebf2e121
INFO 15 Mar 2022 18:19:05 org.joget.marketplace.IteratorProcessToolRecord$1 - Executing tool:
executeProcessTool - org.joget.apps.app.lib.EmailTool
INFO 15 Mar 2022 18:19:05 org.joget.marketplace.IteratorProcessToolRecord$1 - Executed tool:
executeProcessTool - org.joget.apps.app.lib.EmailTool
INFO 15 Mar 2022 18:19:05 org.joget.apps.app.lib.EmailTool - EmailTool: Sending email
from=hugolim@outlook.com, to=hugo@joget.org, cc=, bcc=, subject=Booking Project Debrief
INFO 15 Mar 2022 18:19:06 org.joget.apps.app.lib.EmailTool - EmailTool: Sending email completed for
subject=Booking Project Debrief
INFO 15 Mar 2022 18:19:10 org.joget.marketplace.IteratorProcessToolRecord - Finished item 2 - Record:
2960b356-161d-451a-8c2d-85fdebf2e121

```

9. Once verified working, it is advisable to turn off the debug mode.