IT Automation

Host group management・Menu creation【Practice】

※In this document, “Exastro IT Automation” is described as “ITA".

Version 1.0

Exastro developer

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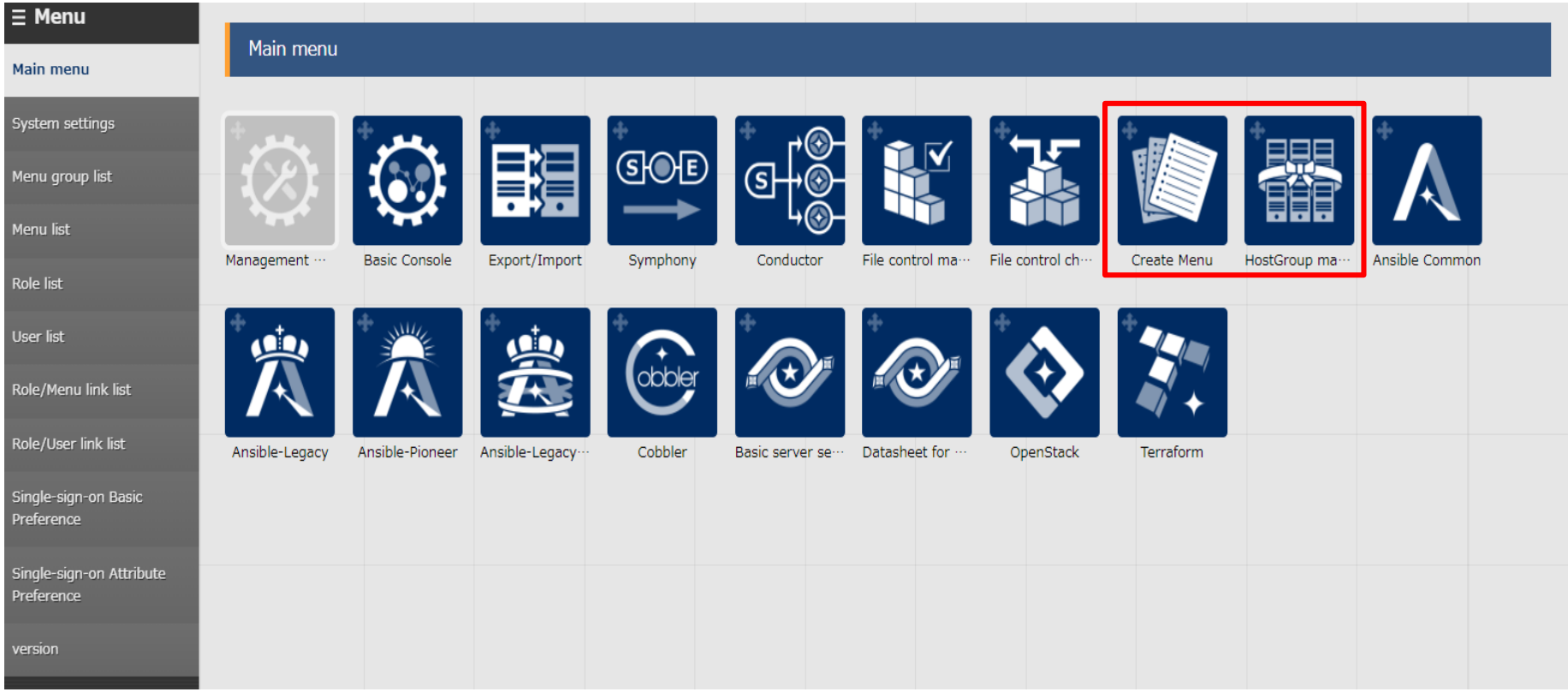
1. Introduction

1.1 About this document

About this document

This document will guide users through a practice scenario where users will be able to get some hands on experience to get a deeper understanding about the following functions.
We will use Ansible Legacy to execute the operations.

- Host group Management
- Create menu



Work environment

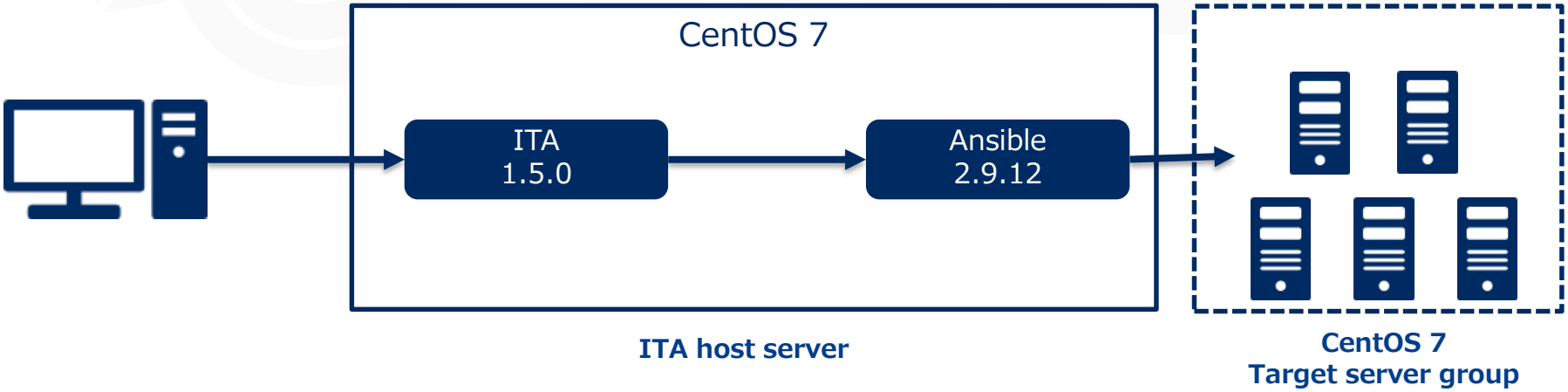
The work environment used in this document is as follows. Please prepare 5 servers in addition to the ITA Host server.(※1)The additional servers will be work targets.

ITA host server

- CentOS 7 (※2)
- ITA 1.5.0
- Ansible 2.9.12

Target

- CentOS 7.8 (※3) … 5 servers

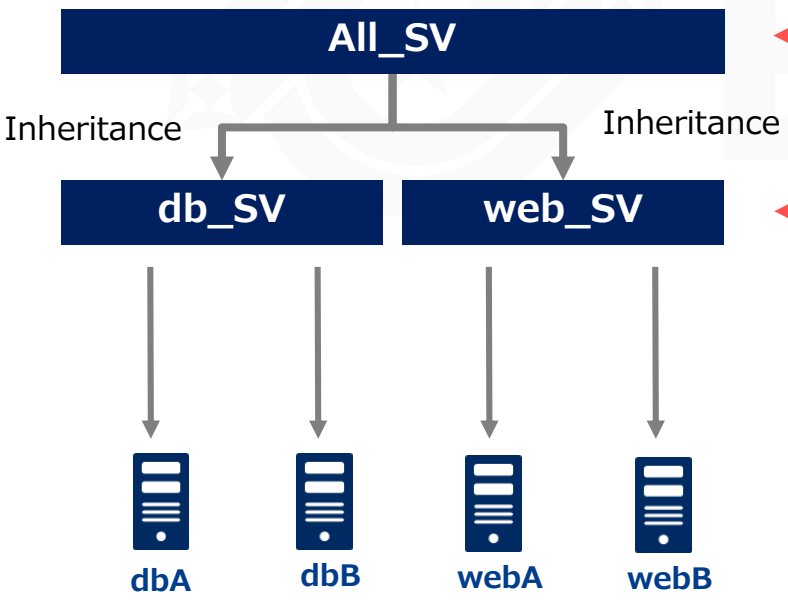


※1 While we recommend that you prepare 5 servers in order to get the best experience, it is possible to complete this scenario with 3~4 servers.
※2 Now CentOS7 will be used as the host server, but ITA can be installed on OS RHEL7 and RHEL8.
※3 Any OS compatible with Ansible can be used.

Scenario 1. Set basic settings for the whole server

Use the host group and menu creation functions to execute the tasks below.

① Set a common time zone for the parent host group "All_SV".
② Set different IP address of DNS server for child host group "db_SV" and "web_SV".
③ Set individual host name for each host.



timezone: Asia/Tokyo

nameserver: 10.15.1.30 or 10.15.1.62

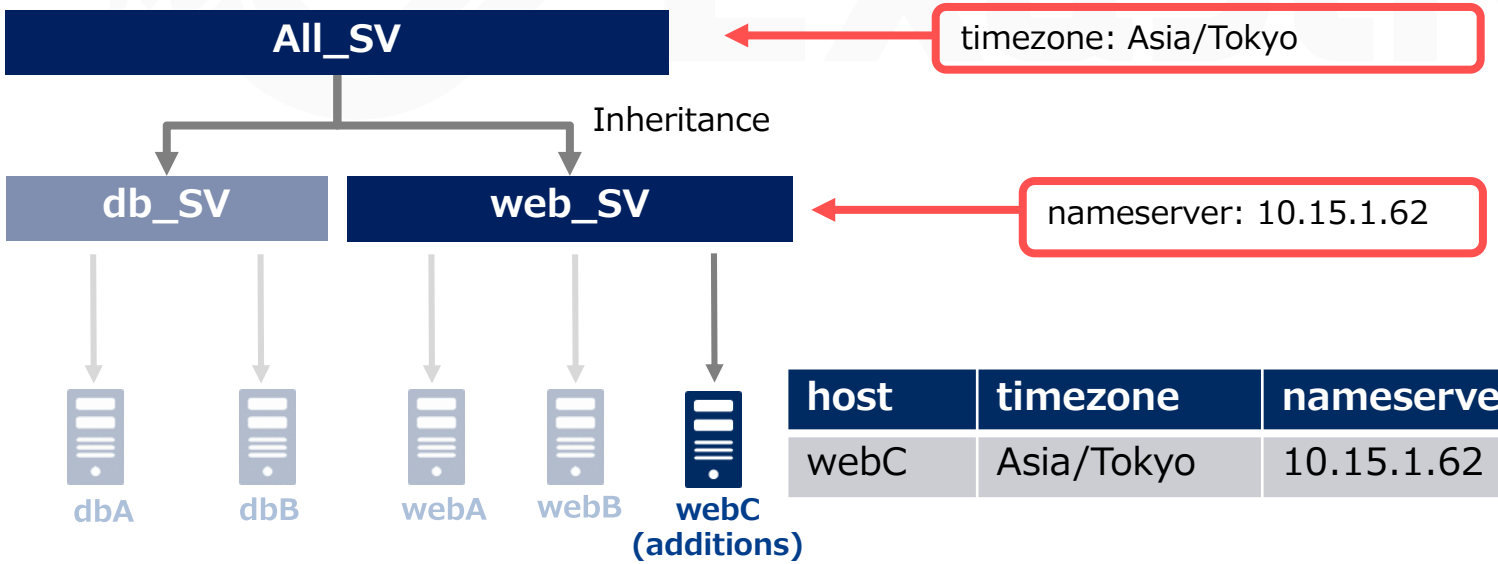
host	timezone	nameserver	hostname
dbA	Asia/Tokyo	10.15.1.30	dbA
dbB	Asia/Tokyo	10.15.1.30	dbB
webA	Asia/Tokyo	10.15.1.62	webA
webA	Asia/Tokyo	10.15.1.62	webB

Scenario 2 execute only on the added server

Assume the work of adding a server after working on the previous section.
If the playbook is idempotent,

1)Add the additional server to host group.2)Execute the same operation settings completed.

However, there are some playbooks are not idempotent such as those that add to the file.
If this is applied repeatedly to the same host, excess Post Scripts and other troubles might occur.
Taking that into consideration, all operation in scenario 2 will take place on the additional servers.
The contents of the Conductor that is going to get executed are the same as the ones in scenario 1.



host	timezone	nameserver	hostname
webC	Asia/Tokyo	10.15.1.62	webC

2. Practice Scenario 1

2.1 Pre-preparation (1/2)

Playbook creation

This scenario will use the following three playbooks.
Please create a file with the following contents.
[Attention] Create the yml file with Character code " UTF-8", New line code "LF".

```
- name: Set Timezone
  timezone:
    name: "{{ VAR_locale_timezone }}"
```

File name: 1-set_timezone.yml
Changes the time zone to the specified value.
In this scenario, all host`s common value will be substituted.

```
- name: Set Hostname
  hostname:
    name: "{{ VAR_hostname }}"
```

File name: 2-set hostname.yml
Changes the hosts name.
In this scenario, value will be substituted per host.

```
- name: Add Nameserver
  shell: 'echo nameserver {{ VAR_nameserver_ip }} >>
/etc/resolv.conf'
```

File name: 3-set nameserver.yml
Adds postscript to /etc/resolv.conf.
As it isn't idempotent, it will be only be executed to each host once.

2.1 Pre-preparation(2/2)

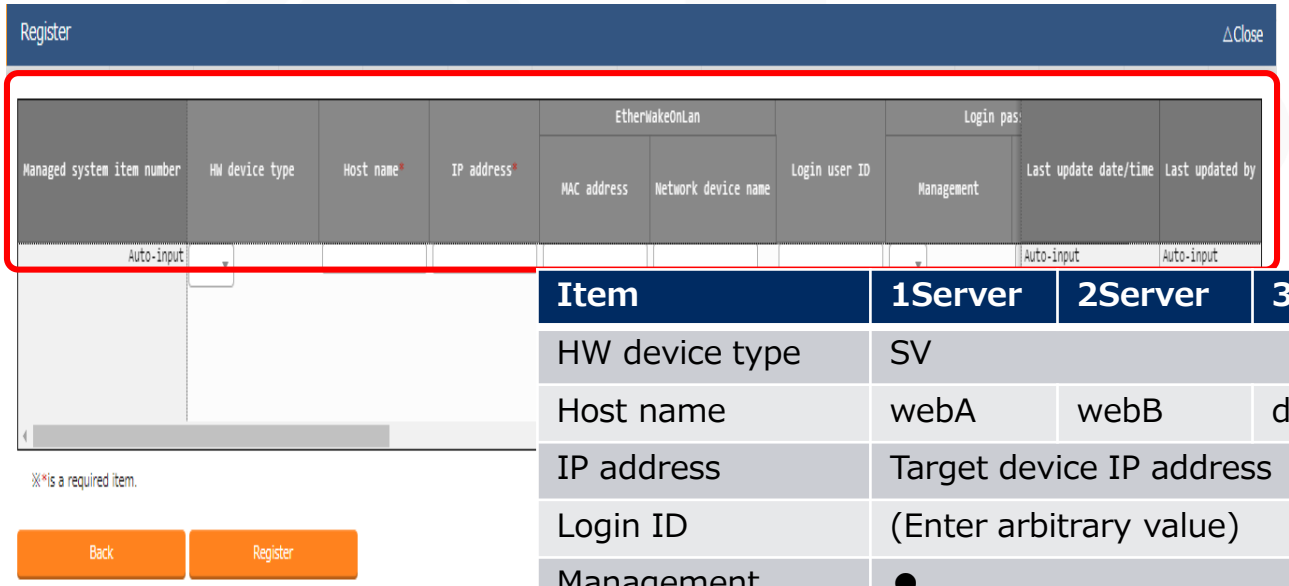
Target host registration

Register host to execute the work in ITA.
This time, we will register 5 servers.
※ webC is used in scenario 2.

Menu **: Basic Console > Device list**

① Click Register > Start Registration.

② Select or input the following information for each item and click "Register".



Item	1Server	2Server	3Server	4Server	5Server
HW device type	SV				
Host name	webA	webB	dbA	dbB	webC
IP address	Target device IP address				
Login ID	(Enter arbitrary value)				
Management	●				
Login password	(Enter arbitrary value)				
Authentication method	ssh				

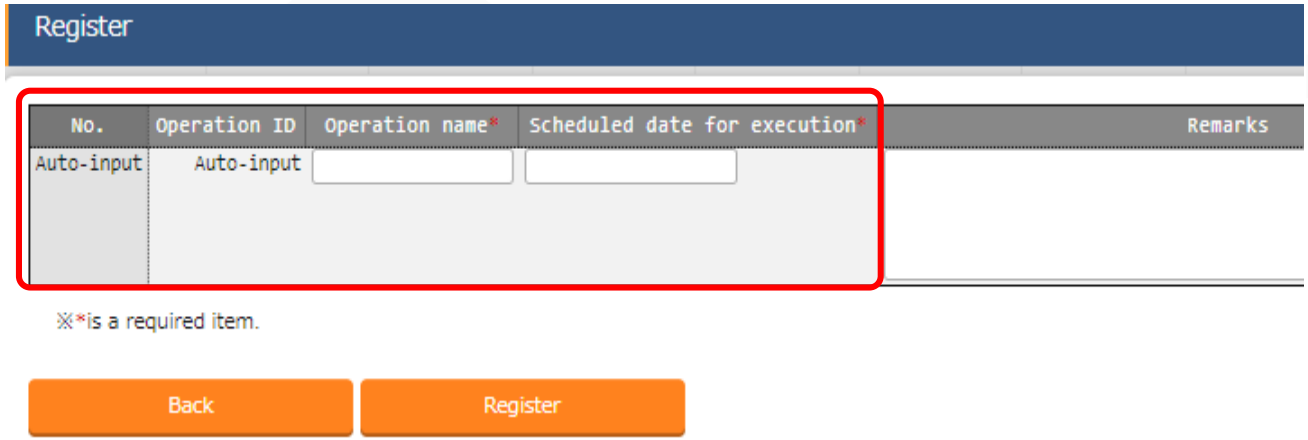
Register new operation

Create operation

Menu : Basic Console > Input operation list

① Click Register > Start Registration.

② Input the following information for each item and click "Register".



Operation name	Scheduled date for execution
Basic settings all	(Enter arbitrary value)

※ "Scheduled date for execution" is just an item for management. It will not be executed automatically.

2.3 Movement configuration (1/3)

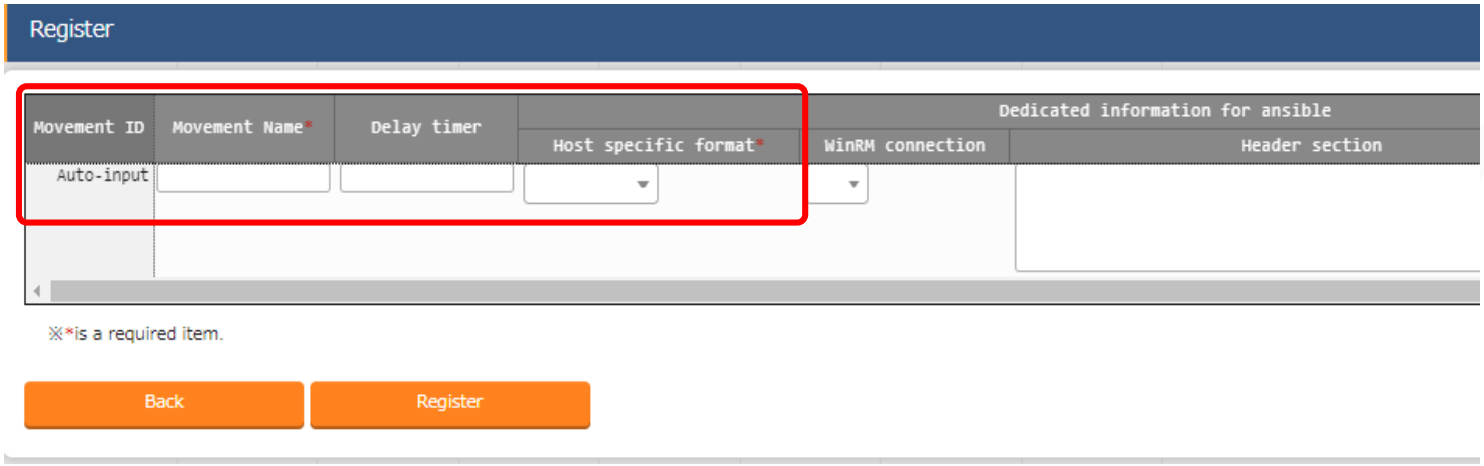
Create Movement

Register the Movements that is going to be associated with the playbooks.

Menu **: Ansible-Legacy > Movement list**

① Click Register > Start Registration.

② Select or input the following information for each item and click "Register".



Movement name	Host specification format
Set Timezone	IP
Set Hostname	IP
Add Nameserver	IP

2.3 Movement configuration (2/3)

Register playbook

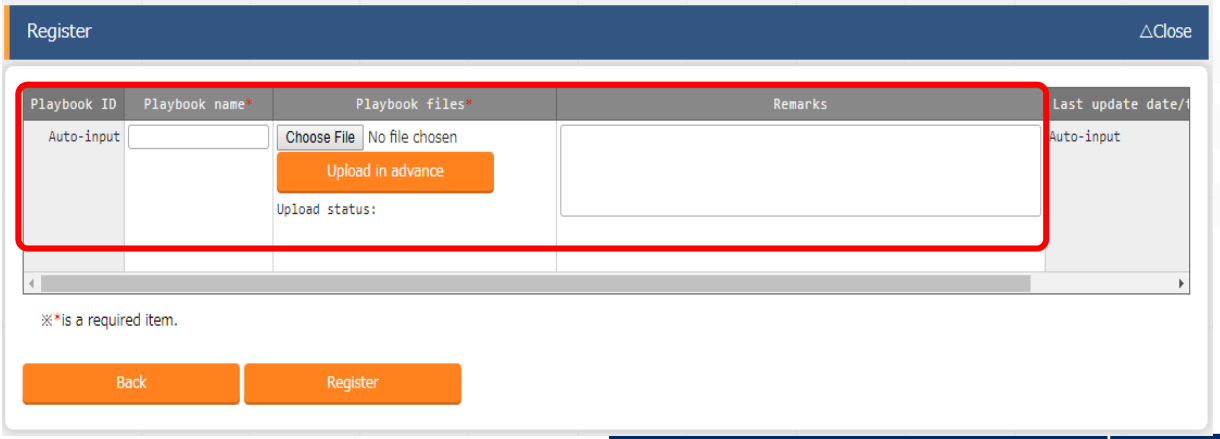
Register the created playbook in ITA.

Menu : Ansible-Legacy > playbook files

① Click Register > Start Registration.

② Select a playbook from "Browser" and click "Upload in advance".

③ Input the following information for each item and click "Register".



Playbook file name	Playbook file
set_timezone	1-set_timezone.yml
add_nameserver	2-.set_nameserver.yml
set_hostname	3-set_hostname.yml

2.3 Movement configuration (3/3)

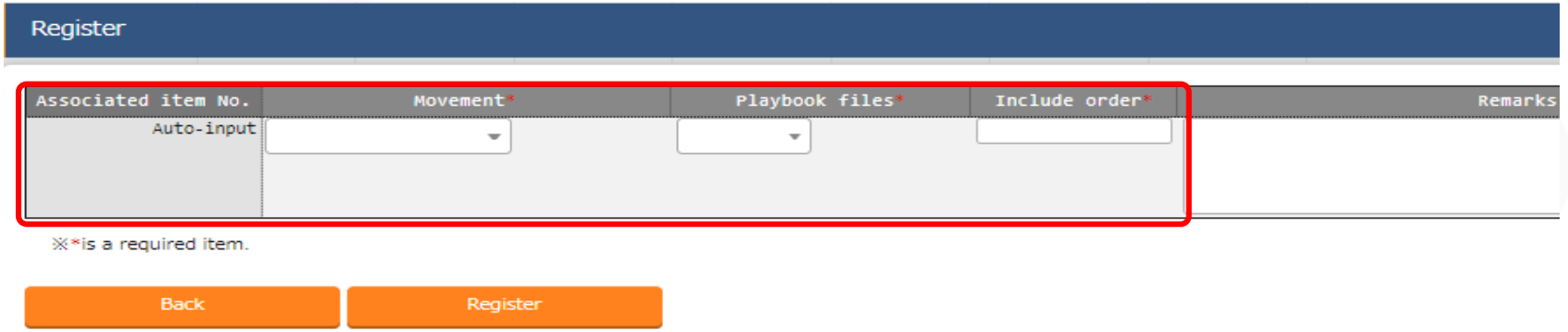
Register the playbook in Movement.

Link the created Movement and Playbook files.

Menu : Ansible-Legacy > Movement details

① Click Register > Start Registration.

② Select or input the following information for each item and click "Register".



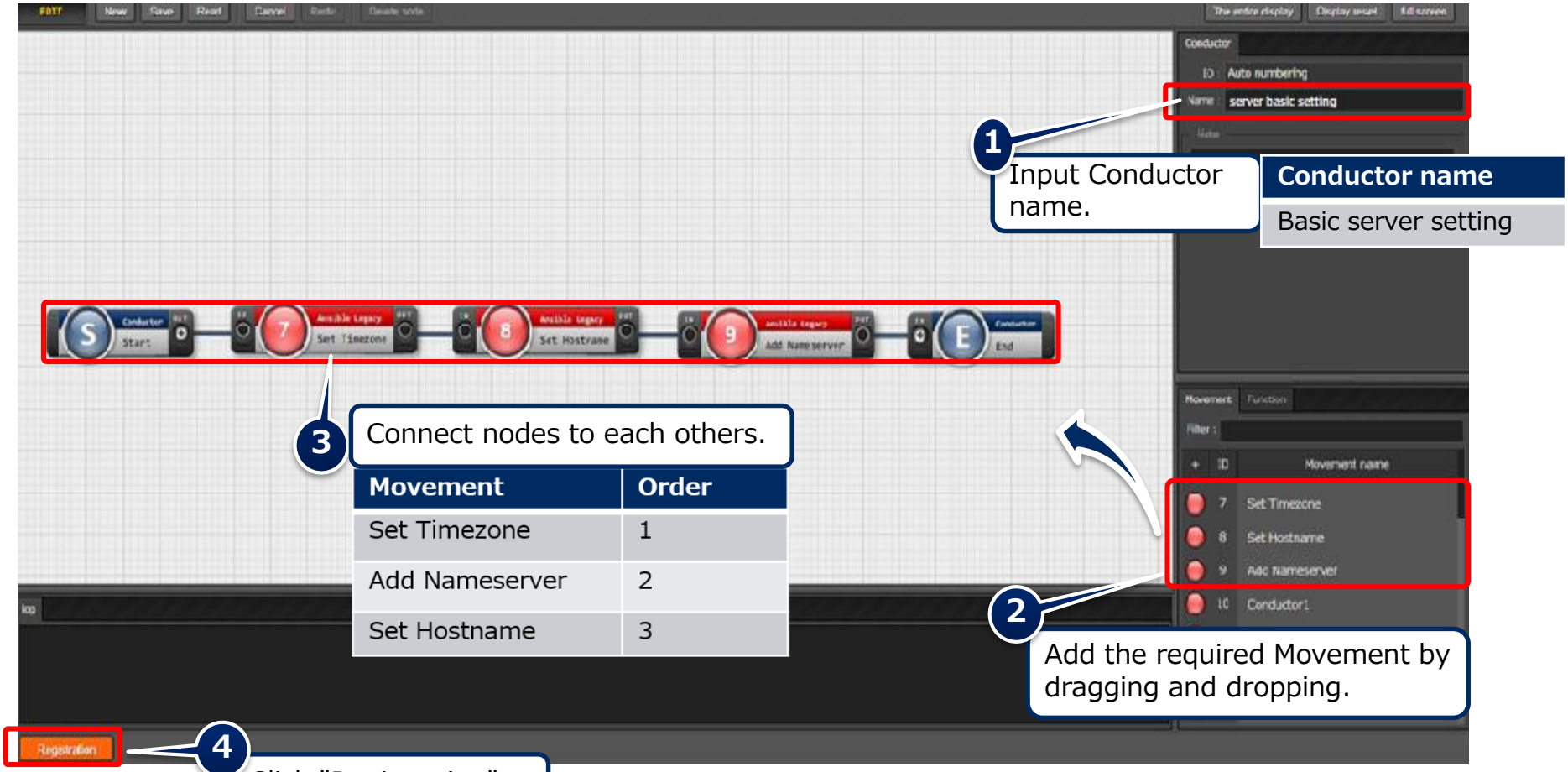
Related table

Movement	Playbook file	Include order
Set Timezone	set_timezone	1
Add Nameserver	add_nameserver	1
Set Hostname	set_hostname	1

Create Conductor

Create a Conductor that collects the defined Movements.

Menu: **Conductor > Conductor class edit**



2.5 Host group setting (1/4)

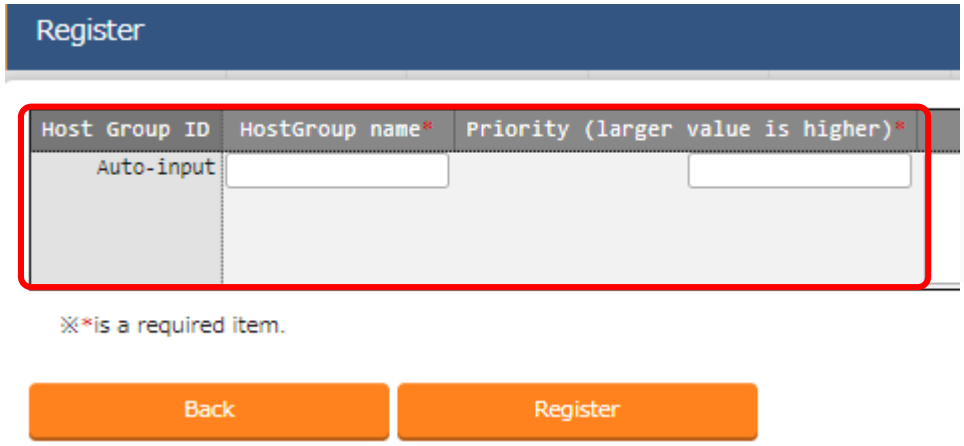
Define host groups

First, create the host groups to which the host belongs.

Menu : **Host group management > Host group list**

① Click Register > Start Registration.

② Select or input the following information for each item and click "Register".



Host group name	Priority order
All_SV	1
web_SV	2
db_SV	3

2.5 Host group setting (2/4)

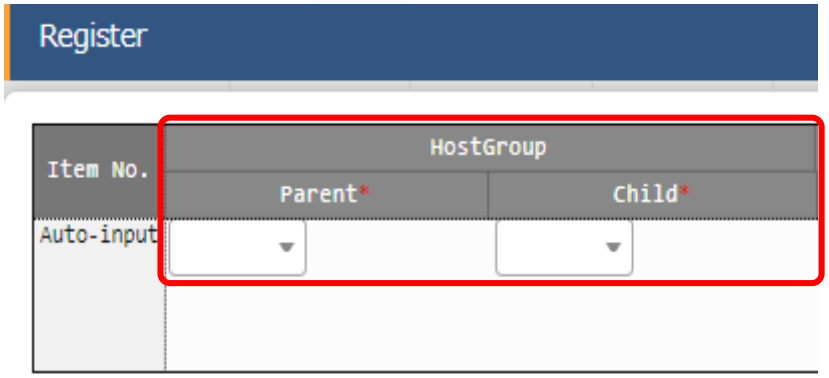
Define the parent-child relationship of host groups

Define the parent-child relationship in host groups.

Menu : **Host group management > Host group parent-child link list**

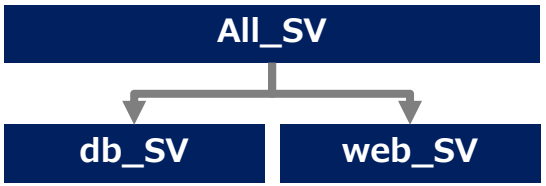
① Click Register > Start Registration.

② Select the following information for each item and click "Register".



Host group parent	Host group child
All_SV	web_SV
All_SV	db_SV

Image



2.5 Host group setting (3/4)

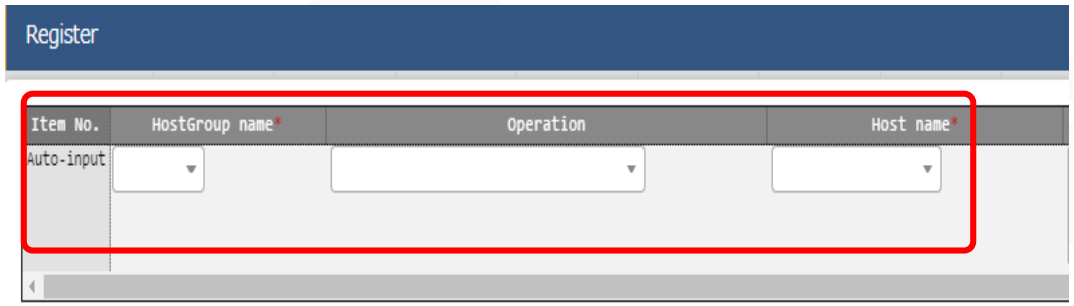
Register the host to host group

Link the target host with the created host group.

Menu : **Host group management > Host link list**

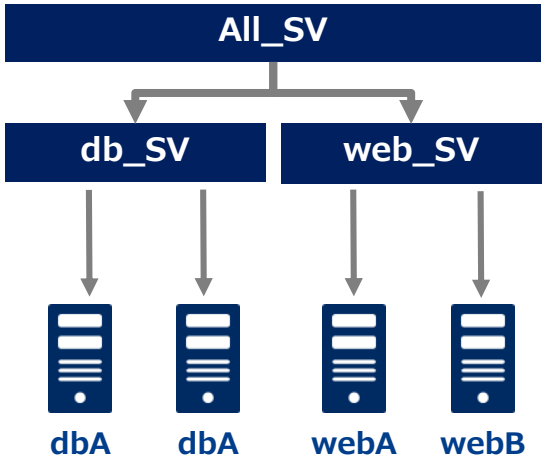
① Click Register > Start Registration.

② Select the following information for each item and click "Register".



Host group name	Operation	Host name
web_SV		webA
web_SV		webB
db_SV		dbA
db_SV		dbB

Image



Check host group variable

The Host name registered in the Host group is automatically variablized by the "Host Group Variablization" function.
Check the contains.

Menu : **Host group management > Host group variable**

① Click "Filter".

② Check that the variables are correctly converted by the "Host Group Variablization Function".

Item No.	HostGroup name	HostGroupVariable name	Host name	Remarks	Last update date/time	Last updated by
1	GroupA	VAR_hostgroup_GroupA	Tsai_test		2020/10/21 11:50:59	Create hostgroup variable procedure
2	GroupB	VAR_hostgroup_GroupB	Tsai_test		2020/10/21 11:55:42	Create hostgroup variable procedure
3	GroupC	VAR_hostgroup_GroupC	Tsai_test		2020/10/21 11:55:42	Create hostgroup variable procedure

Point

Each host that directly belongs a host group also belongs to the parent host group of the parent host group.

2.6 Menu list(1/8)

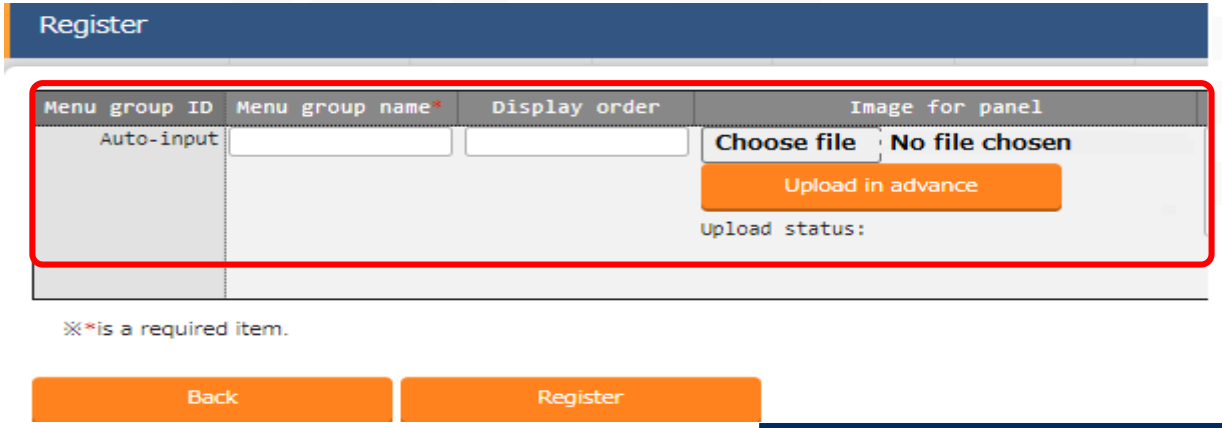
Menu group creation

Create a menu group that is going to contain all of the menus (Parameter sheets). At the same time, create the group that is going to contain menus and data sheets (both for referencing).

Menu: **Management console > Menu group list**

① Click Register > Start Registration.

② Input the following information for each item and click "Register".



Menu group name	Display order
Basic server setting(for host group)	120
Basic server setting(for host)	125
Basic server setting(for reference)	130
Data sheet for pull-down selection	140

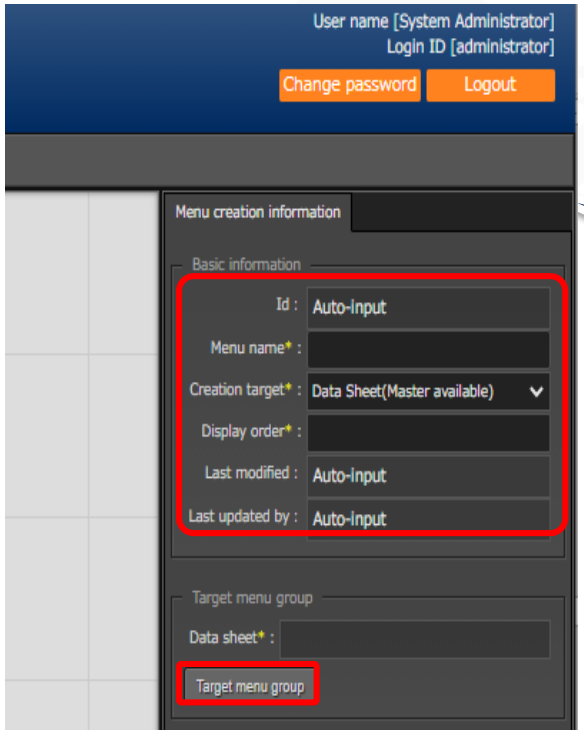
Create data sheet

Create data sheet.
The value registered here will later be selectable from a pull-down menu.

Menu : **Create menu > Create/Define menu**

① Input the following information for each item.

② Click "Target menu group".(Next item)



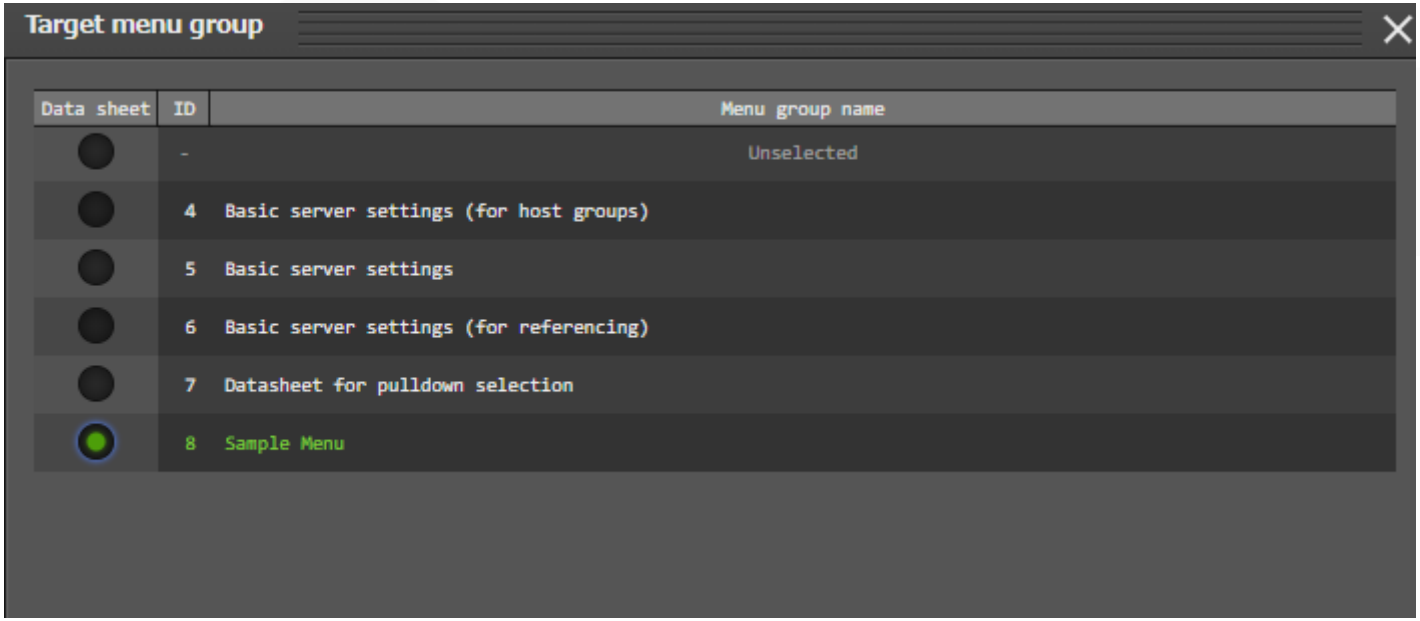
Item name	Input contents
Menu name	Time zone list
Target operation	Data sheet(Master available)
Display order	1

Create data sheet.

In "Menu Group Selection", select the menu groups that are going to contain the menus that you want to create.

① Select as shown below.

② Press " Decision" on the bottom of the screen.



Define the item name of the data sheet

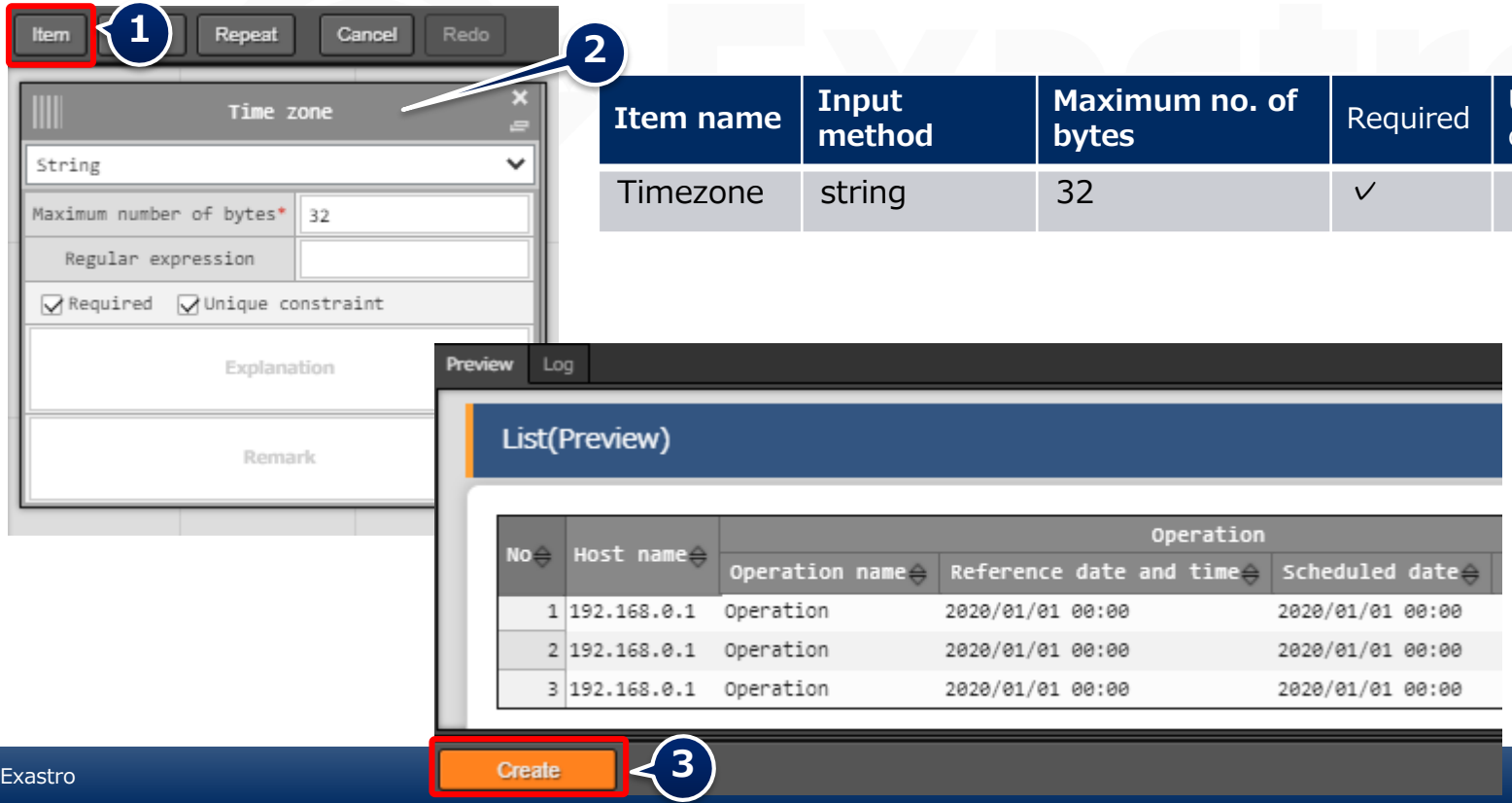
Continuing from the previous section, define the items on the sheet.

Menu **: Create menu > Create/Define menu**

① Click "Item" and add a new item.

② Input the following for each of the items.

③ Click "Create" at the bottom of the screen.



Item name	Input method	Maximum no. of bytes	Required	Unique constraint
Timezone	string	32	✓	✓

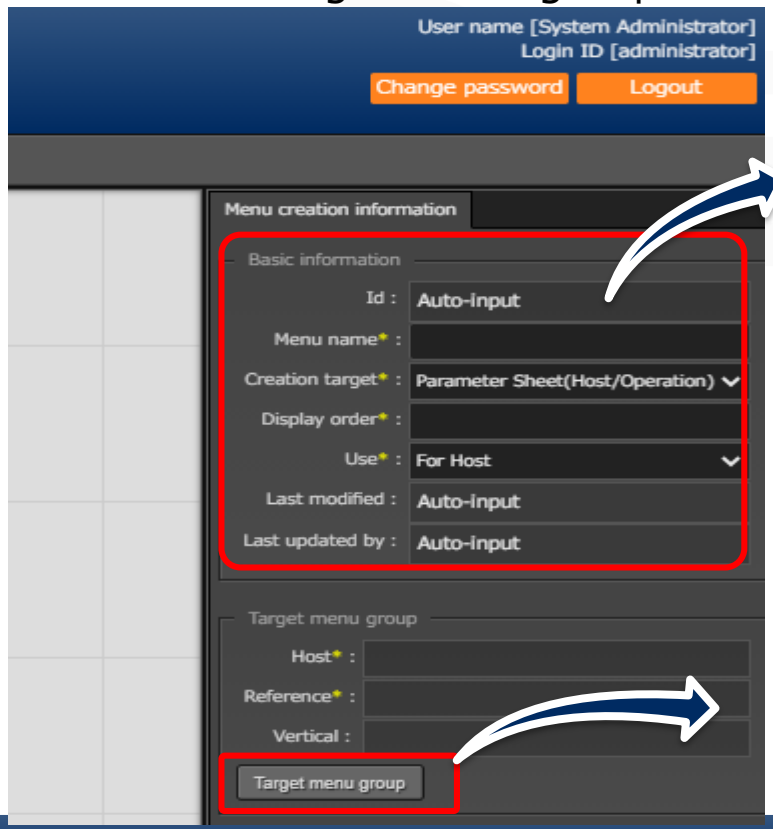
Create the menu for the host group

Create a parameter sheet for the host group and manage the parameters that apply to your host group.

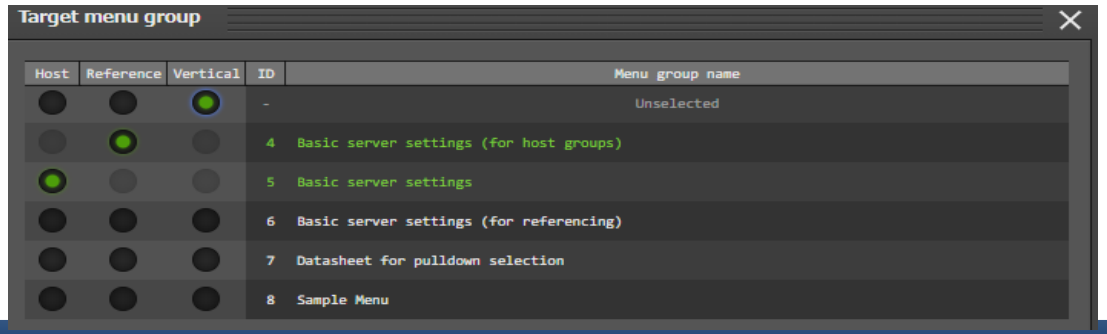
Menu : **Create menu > Create/Define menu**

① "Basic information" Input the following information for each item.

② Click "Target menu group" and select the Target menu group.(Next item)



Item name	Enter content
Manu name	Parameter for server
Creation target	Parameter sheet (Host/Operation)
Display order	1
Use	For Host



2.6 Menu list(6/8)

Define the item name of the parameters sheet

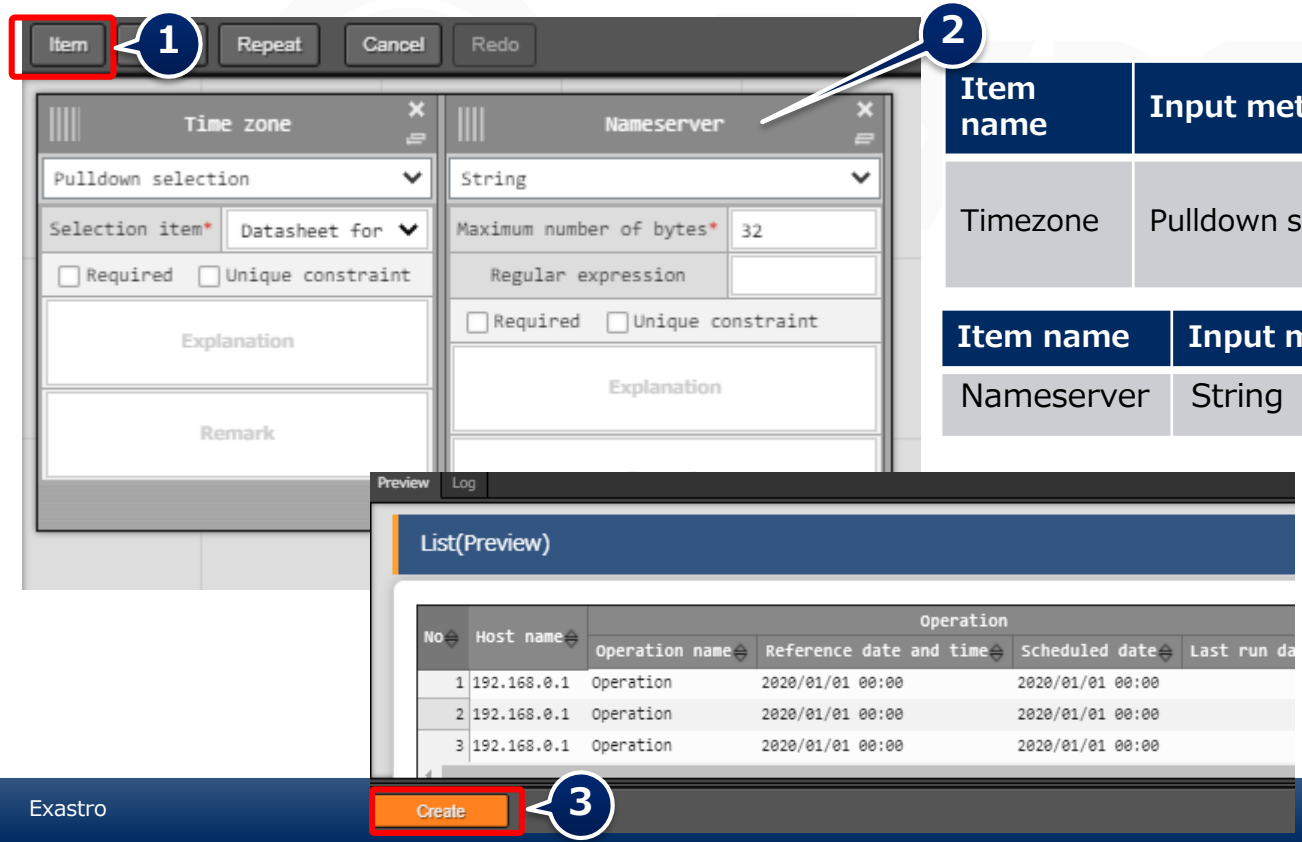
Continuing from the previous section, define the items on the sheet.

Menu : **Create menu > Create/Define menu**

① Click "Item" and add a new item.

② Input the following for each of the items.

③ Click "Create" at the bottom of the screen.



Item name	Input method	Select item
Timezone	Pulldown selection	Basic server settings: Timezone list: Parameter/Timezone

+

Item name	Input method	Maximum no. of bytes
Nameserver	String	32

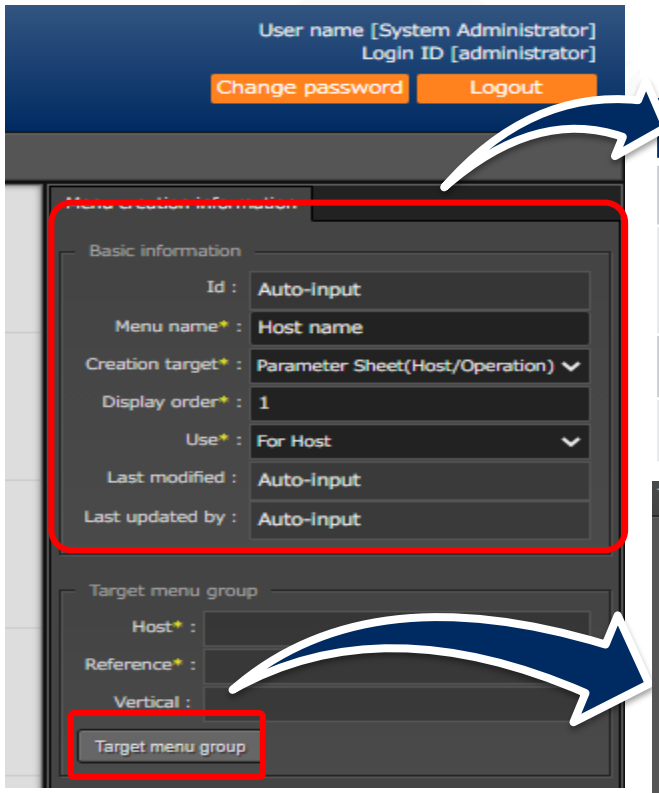
Create the menu for the host group

Create a parameter sheet for the host group and manage the parameters that apply to your host group.

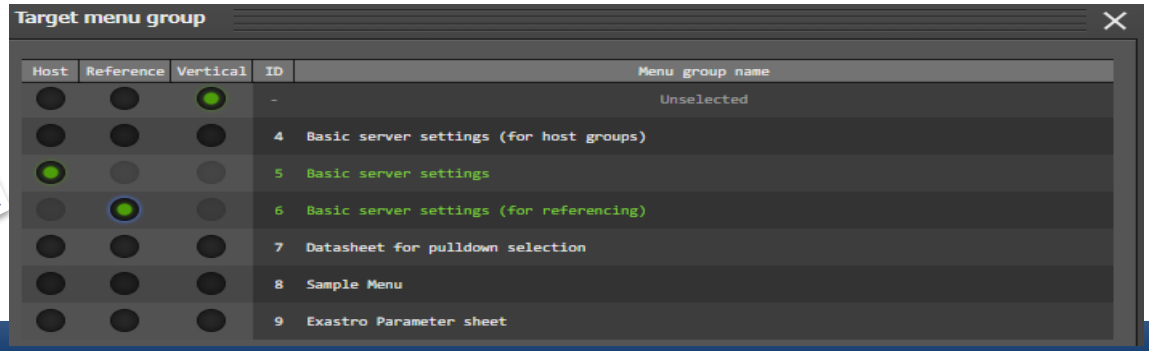
Menu : **Create menu > Create/Define menu**

① "Basic information" Input the following information for each item.

② Click "Target menu group" and select the Target menu group.(Next item)



Item name	Enter content
Menu name	Host name
Creation target	Parameter sheet (Host/Operation)
Display order	1
Use	For host



2.6 Menu list(8/8)

Define the item name of the parameters sheet

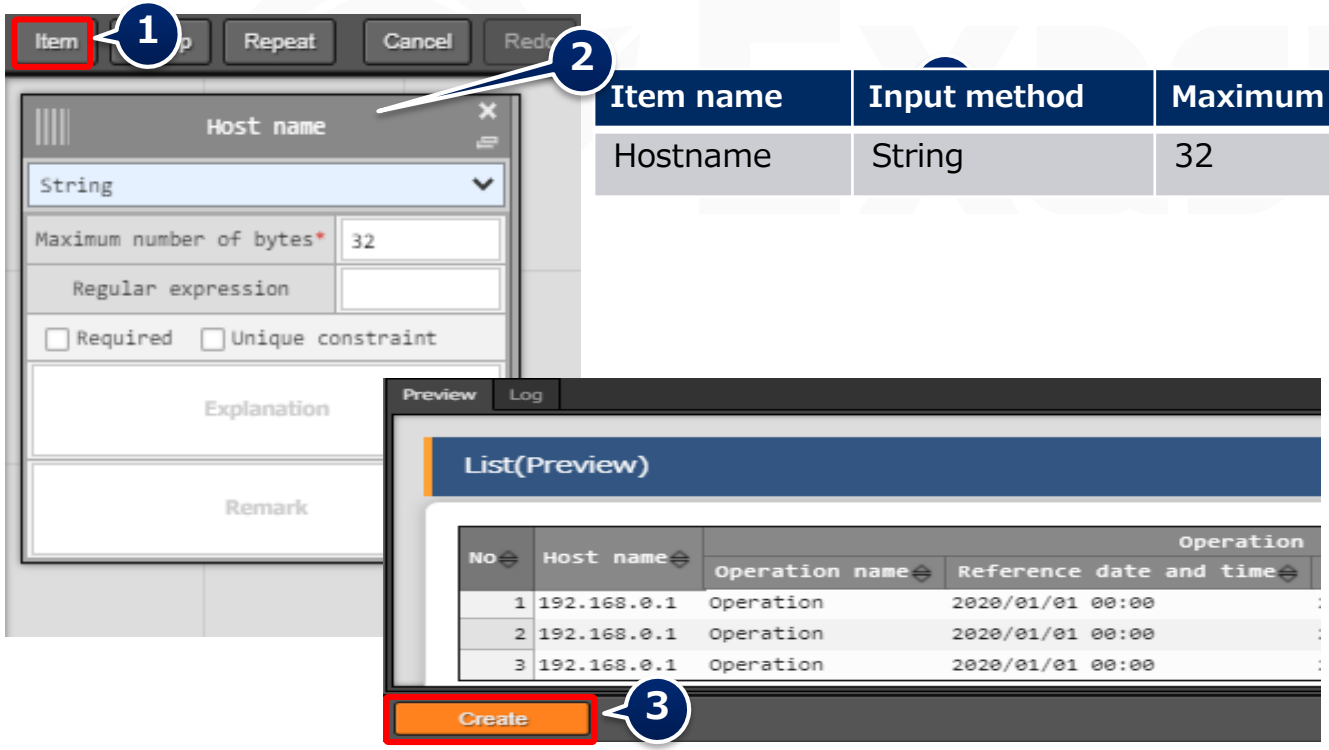
Continuing from the previous section, define the items on the sheet.

Menu **: Create menu > Create/Define menu**

① Click "Item" and add a new item.

② Input the following for each of the items.

③ Click "Create" at the bottom of the screen.



Item name	Input method	Maximum number of bytes
Hostname	String	32

2.7 Data registration(1/3)

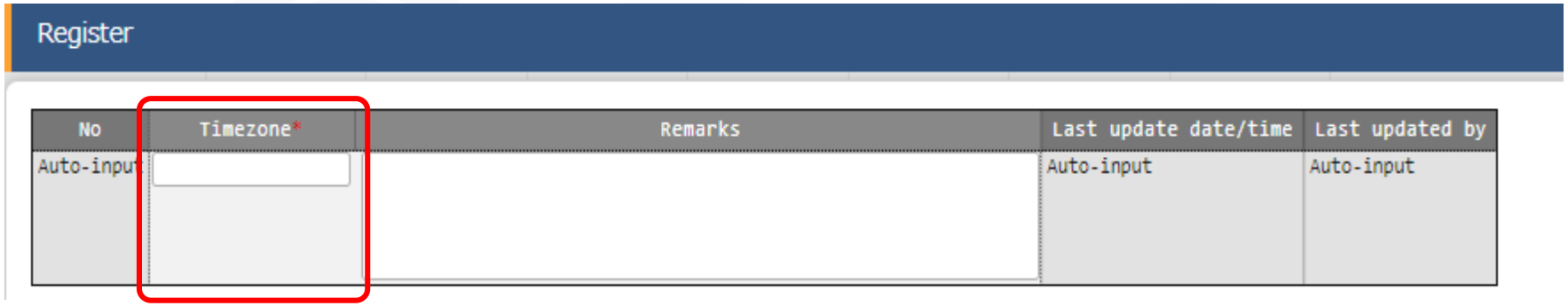
Register data to the data sheet.

The Data and Parameter sheet are now created.
Move to the created menu and input the data.

Menu: **Data sheet for pull-down selection > Time zone list**

① Click Register > Start Registration.

② Select or input the following information for each item and click "Register".



Timezone
Asia/Tokyo
America/New_York

2.7 Data registration(2/3)

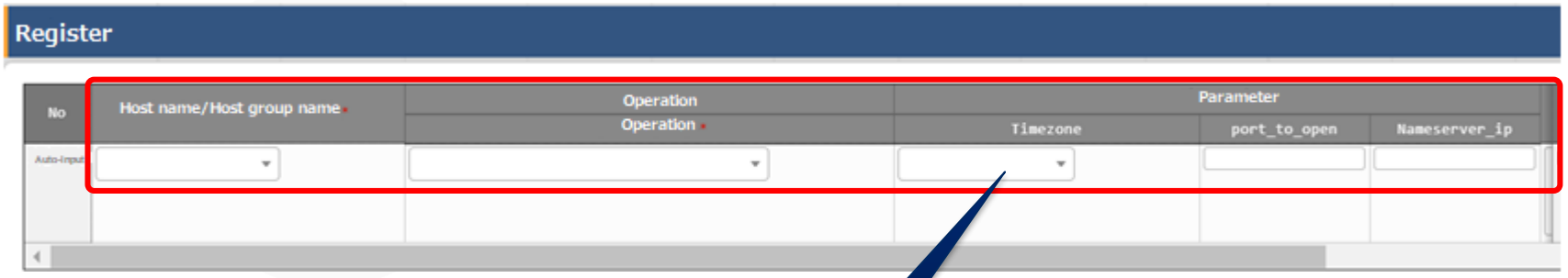
Register data to the parameter sheet

Move to the created menu and input the data.

Menu**: Basic server setting(for host group) > Server parameter**

① Click Register > Start Registration.

② Select or input the following information for each item and click "Register".



Point

Users can select from the contents entered in the data sheet in the previous section.

Host name/Host group name	Operation	Timezone	Nameserver_ip
[HG]All_hosts	Basic settings all	Asia/Tokyo	10.15.1.30
[HG]web_SV	Basic settings all	Asia/Tokyo	10.15.1.62
[HG]db_SV	Basic settings all	Asia/Tokyo	10.15.1.30

2.7 Data registration(3/3)

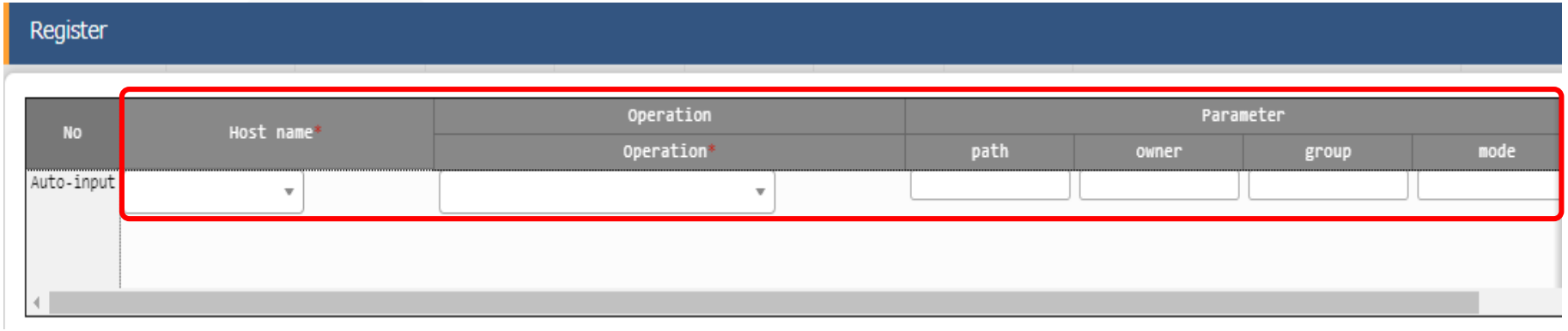
Register data to the parameter sheet

Next, register the data from the menu created in the menu group for the host.

Menu: **Basic server setting(Host) > Host name**

① Click Register > Start Registration.

② Select or input the following information for each item and click "Register".



Host name	Operation	Hostname
webA	Basic settings all	webA
webB	Basic settings all	webB
dbA	Basic settings all	dbA
dbB	Basic settings all	dbB

2.8 Substitution Value Automatic Registration setting

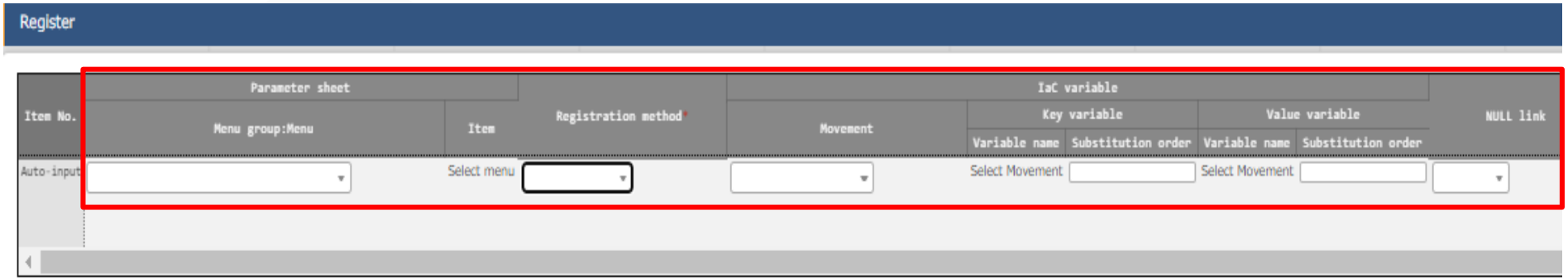
Set Substitute Value Automatic Registration settings

Connect the variables to each item after entering the data in the parameter sheet.

Menu: **Ansible-Legacy > Substitution value automatic registration setting**

① Click Register > Start Registration.

② Select or input the following information for each item and click "Register".



Menu	Item	Registration method	Movement	Value variable Variable name	Substitution order
Parameter for server	Timezone	Value type	Set Timezone	VAR_locale_timezone	
Parameter for server	Nameserver_ip	Value type	Add Nameserver	VAR_nameserver_ip	
Host name	Hostname	Value type	Set Hostname	VAR_hostname	

2.9 Check Substitution value・Target host

Check Substitution value and Target host

Check the value specified by the substituted value automatic registration and the target host.

Menu**: Ansible-Legacy > Target host & Ansible-Legacy > Substitution value list**

① Click "Filter".

② Check that the correct value is specified by "legacy substitution value automatic registration setting procedure".

Target host

Update	Discard	Item No.	Operation	Movement	Host	Remarks	Last update date/time	Last updated by
Update	Discard	1	1:Operation1	1:Legacy1	1:Tsai_test		2020/09/01 11:41:38	Data portability procedure
Update	Discard	2	1:Operation1	3:Legacy_movement	Exchange ID has failed(2)		2020/10/07 10:33:55	Data portability procedure
Update	Discard	3	1:Operation1	3:Legacy_movement	Exchange ID has failed(3)		2020/10/08 09:47:08	Data portability procedure
Update	Discard	4	1:Operation1	1:Legacy1	Exchange ID has failed(3)		2020/10/15 10:21:55	Data portability procedure
Update	Discard	5	2:Test Operation	1:Legacy1	Exchange ID has failed(3)		2020/10/15 10:23:43	Data portability procedure
Update	Discard	6	2:Test Operation	1:Legacy1	1:Tsai_test		2020/10/16 13:35:55	Data portability procedure
Update	Discard	7	2:Test Operation	Exchange ID has failed(2)	1:Tsai_test		2020/10/16 13:36:08	Data portability procedure
Update	Discard	8	2:Test Operation	3:Legacy_movement	1:Tsai_test		2020/10/16 13:37:57	Data portability procedure
Update	Discard	11	Exchange ID has failed(4)	1:Legacy1	4:testserverJoachim		2020/10/20 15:09:15	Data portability procedure
Update	Discard	12	Exchange ID has failed(4)	1:Legacy1	1:Tsai_test	This is test for milan	2020/10/20 15:27:30	Data portability procedure
Update	Discard	14	Exchange ID has failed(5)	5:Move1	1:Tsai_test		2020/10/21 09:41:13	Data portability procedure
Update	Discard	15	1:Operation1	10:Conductor1	1:Tsai_test		2020/11/10 16:14:08	Data portability procedure
Update	Discard	16	8:OP1	11:MV1	1:Tsai_test		2020/11/19 10:53:52	System Administrator
Update	Discard	17	9:operation	12:move1	1:Tsai_test		2020/12/02 16:14:26	System Administrator
Update	Discard	18	9:operation	7:Set Timezone	1:Tsai_test		2020/12/03 11:53:05	System Administrator
Update	Discard	19	9:operation	8:Set Hostname	1:Tsai_test		2020/12/03 11:53:25	System Administrator

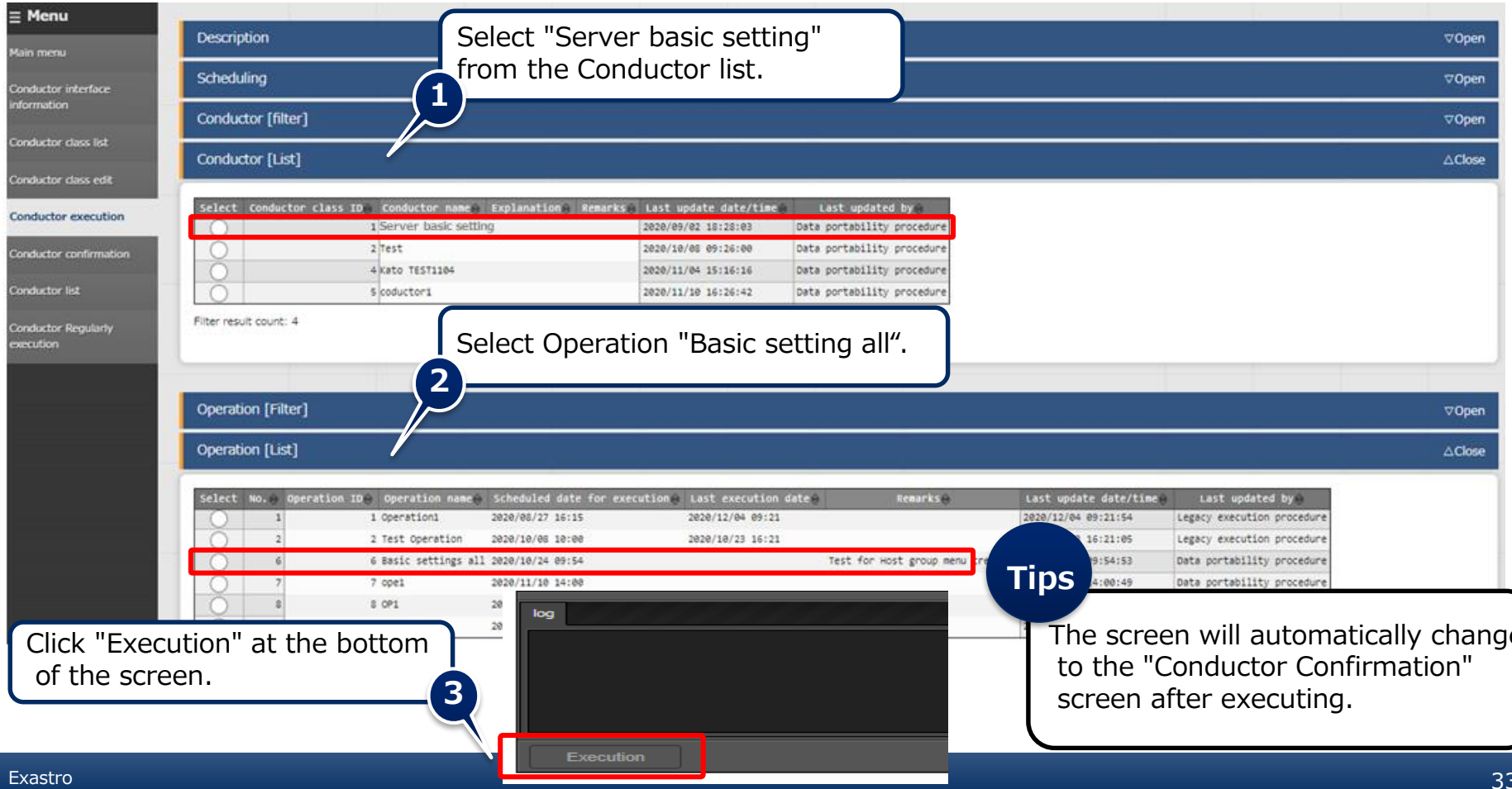
Substitution value list

Update	Discard	Item No.	Operation	Movement	Host	Variable name	Specific value	Substitution order	Remarks	Last update date/time	Last updated by
Update	Discard	1	1:Operation1	1:Legacy1	1:Tsai_test	1:VAR_dir_name	/root/test			2020/09/02 18:20:07	Data portability procedure
Update	Discard	2	1:Operation1	1:Legacy1	1:Tsai_test	2:VAR_owner	root			2020/09/02 18:20:19	Data portability procedure
Update	Discard	3	1:Operation1	1:Legacy1	1:Tsai_test	3:VAR_group	root			2020/09/02 18:20:35	Data portability procedure
Update	Discard	4	1:Operation1	1:Legacy1	1:Tsai_test	4:VAR_mode	0755			2020/09/02 18:20:46	Data portability procedure
Update	Discard	7	Exchange ID has failed(5)	5:Move1	1:Tsai_test	9:VAR_DIRECTORY	testdirectory			2020/10/21 09:42:23	Data portability procedure
Update	Discard	8	8:OP1	11:MV1	1:Tsai_test	12:VAR_directory	/tmp/work1			2020/11/19 10:57:36	System Administrator
Update	Discard	9	9:operation	12:move1	1:Tsai_test	13:VAR_DIRECTORY	testdirectory			2020/12/02 16:44:10	System Administrator

Execute Conductor

If you finished the operations in the previous section, the Conductor should be created and the substitute values should be registered.
Finally, execute Conductor and check the result on the target host.

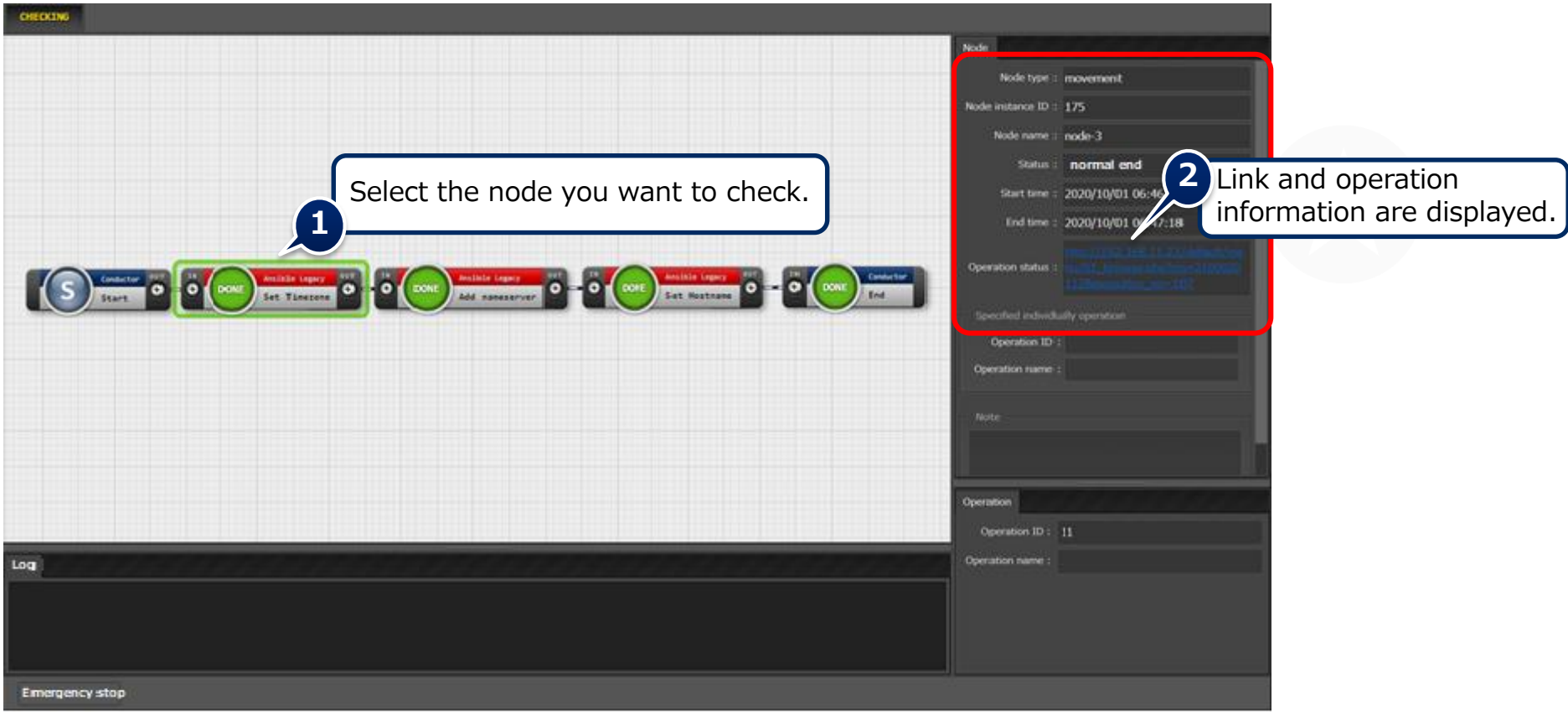
Menu : **Conductor > Conductor execution**



Check the Conductor Execution results

In the work confirmation screen, you can check the results of the whole execution or execution per node.
Selecting an inputted Movement will show a link to a more detailed result screen.

Menu : **Conductor > Conductor confirmation**



2.11 Reference parameter sheet confirmation

Check contents of the reference parameter sheet

By completing the operation in the previous section, the set parameters have now been applied to the target host.
Finally, check the reference parameter sheet and confirm that the update date and time etc. are recorded.
Menu: Basic server setting(Reference)

① Click "Filter".

② Confirm that the “Reference date/time" and "Last update date/time" are updated.

Update	Discard	No	Host name	Operation					Parameter				Last update date/time	Last updated by
				ID	Operation name	Reference date	Scheduled date for execution	Last execution date	path	owner	group	m		
Update	Discard	1	Tsai_test	2	Test Operation	2020/10/23 16:21	2020/10/08 10:00	2020/10/23 16:21	/tmp/work2	root	root	0	2020/12/07 10:51:36	System Administrator
Update	Discard	2	Tsai_test	9	operation	2020/12/03 15:50	2020/12/18 16:03	2020/12/03 15:50	/tmp/work2	root	root	0	2020/12/07 10:55:44	System Administrator
Update	Discard	3	Tsai_test	1	Operation1	2020/12/04 09:21	2020/08/27 16:15	2020/12/04 09:21	/tmp/work2	root	root	0	2020/12/07 10:57:33	System Administrator

3. Practice Scenario 2

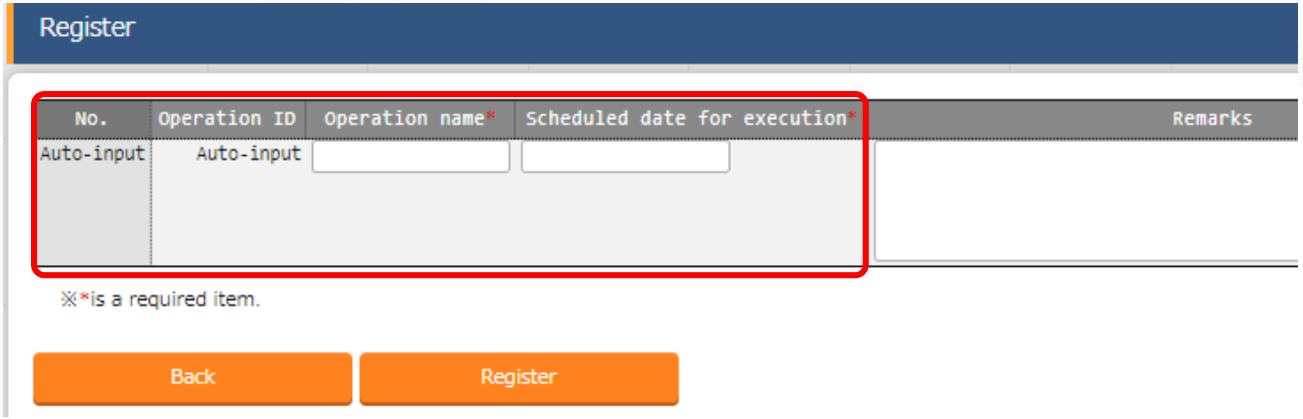
Register new operation

Create an additional operation.

Menu : **Basic Console > Input operation list**

① Click Register > Start Registration.

② Input the following information for each item and click "Register".



Operation name	Scheduled date for execution
Basic setting Additional server only	(Enter arbitrary value)

※ "Scheduled date for execution" is just an item for management. It will not be executed automatically.

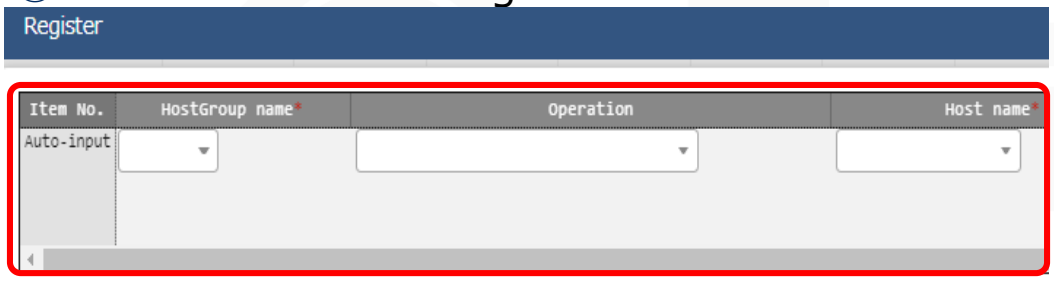
3.2 Add host to host group

Register host to host group

Register additional hosts in the host group.
In order to remove WebA and webB from being work targets, we also will change the settings that we set in Scenario 1.
Menu: **Host group management > Host link list**

① Click List/Update > Update
Click "New register "Register > Start Registration.

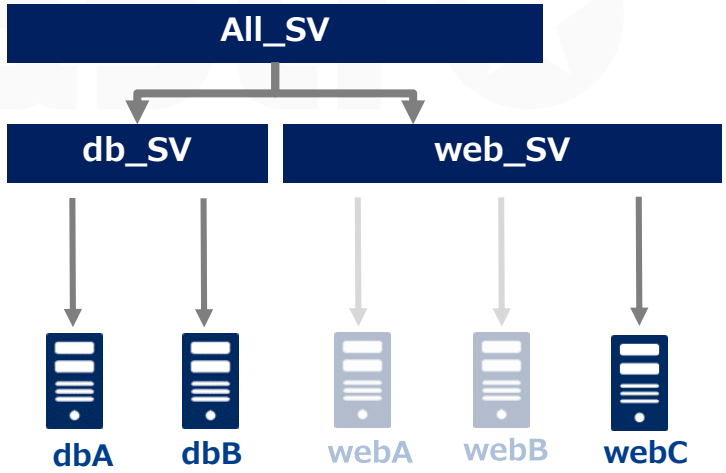
② Select the following information for each item and click "Register".



※*is a required item.

Host group name	Operation	Host name
web_SV	Basic settings all	webA
web_SV	Basic settings all	webB
web_SV	Basic settings additional server only	webC

Image



Point

In this case,
When "Basic settings all servers" is executed, only WebA and B will be targets.
When "Basic settings Additional server" is executed, only webC will be target.

3.3 Data registration(1/2)

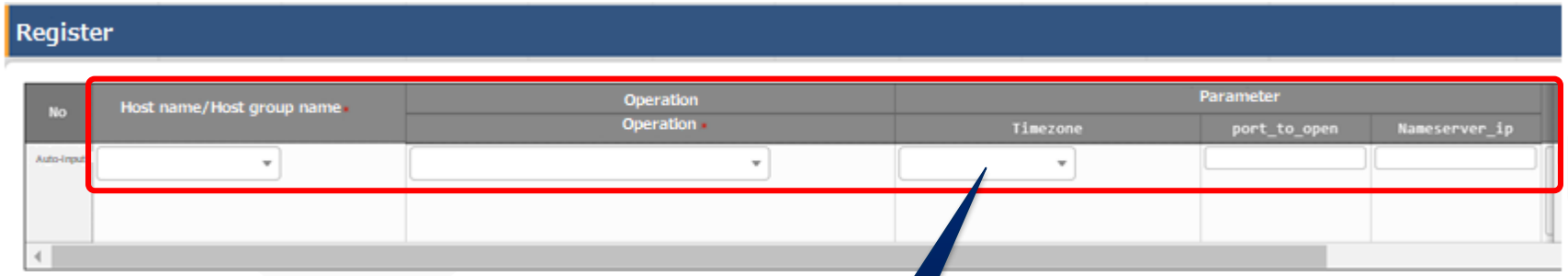
Register data in the parameter sheet

Move to the menu created in scenario 1 and input the data.

Menu: **Basic server setting(Host group) > Server parameter**

① Click Register > Start Registration.

② Select or input the following information for each item and click "Register".



Point

Users can select from the contents entered in the data sheet in the previous section.

Host name/Host group name	Operation	Timezone	Nameserver_ip
[HG]web_SV	Basic settings additional server only	Asia/Tokyo	10.15.1.62

3.3 Data registration(2/2)

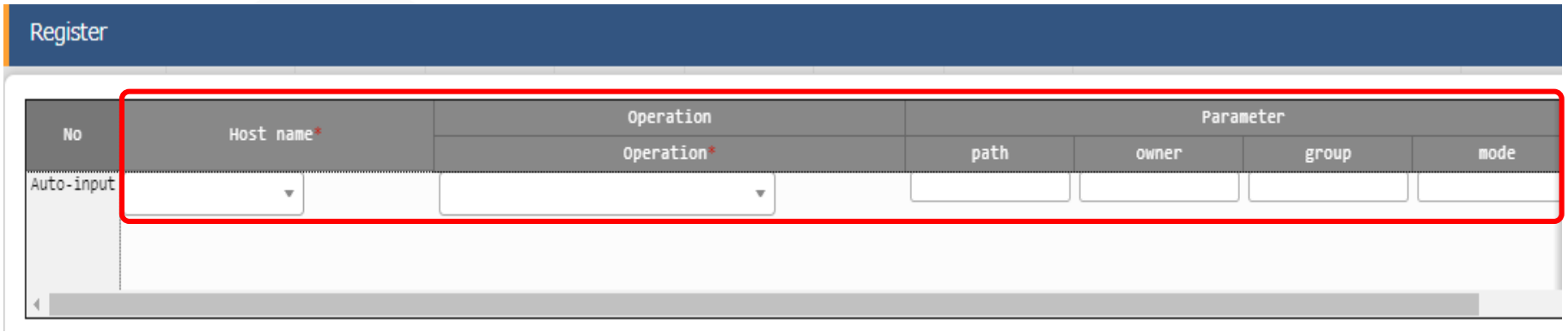
Register data in the parameter sheet

Next, register the data from the menu created in the menu group for the host.

Menu: **Basic server setting(Host) > Host name**

① Click Register > Start Registration.

② Select or input the following information for each item and click "Register".



Host name	Operation	Hostname
webC	Basic settings additional server only	webC

3.4 Check Substitution value・Target host

Check Substitution value and Target host

Check the value specified by the substituted value automatic registration and the target host.

Menu: **Ansible-Legacy > Target host & Ansible-Legacy > Substitution value list**

① Click "Filter".

② Check that only the data of "webC" is added by the "legacy substitution value automatic registration setting procedure".

Target host

Update	Discard	Item No.	Operation	Movement	Host	Remarks	Last update date/time	Last updated by
Update	Discard	1	1:Operation1	1:Legacy1	1:Tsai_test		2020/09/01 11:41:38	Data portability procedure
Update	Discard	2	1:Operation1	3:Legacy_movement	Exchange ID has failed(2)		2020/10/07 10:33:55	Data portability procedure
Update	Discard	3	1:Operation1	3:Legacy_movement	Exchange ID has failed(3)		2020/10/08 09:47:08	Data portability procedure
Update	Discard	4	1:Operation1	1:Legacy1	Exchange ID has failed(3)		2020/10/15 10:21:55	Data portability procedure
Update	Discard	5	2:Test Operation	1:Legacy1	Exchange ID has failed(3)		2020/10/15 10:23:43	Data portability procedure
Update	Discard	6	2:Test Operation	1:Legacy1	1:Tsai_test		2020/10/16 13:35:55	Data portability procedure
Update	Discard	7	2:Test Operation	Exchange ID has failed(2)	1:Tsai_test		2020/10/16 13:36:08	Data portability procedure
Update	Discard	8	2:Test Operation	3:Legacy_movement	1:Tsai_test		2020/10/16 13:37:57	Data portability procedure
Update	Discard	11	Exchange ID has failed(4)	1:Legacy1	4:testserverJoachim		2020/10/20 15:09:15	Data portability procedure
Update	Discard	12	Exchange ID has failed(4)	1:Legacy1	1:Tsai_test	This is test for milan	2020/10/20 15:27:30	Data portability procedure
Update	Discard	14	Exchange ID has failed(5)	5:Move1	1:Tsai_test		2020/10/21 09:41:13	Data portability procedure
Update	Discard	15	1:Operation1	10:Conductor1	1:Tsai_test		2020/11/10 16:14:08	Data portability procedure
Update	Discard	16	8:OP1	11:MV1	1:Tsai_test		2020/11/19 10:53:52	System Administrator
Update	Discard	17	9:operation	12:move1	1:Tsai_test		2020/12/02 16:14:26	System Administrator
Update	Discard	18	9:operation	7:Set Timezone	1:Tsai_test		2020/12/03 11:53:05	System Administrator
Update	Discard	19	9:operation	8:Set Hostname	1:Tsai_test		2020/12/03 11:53:25	System Administrator

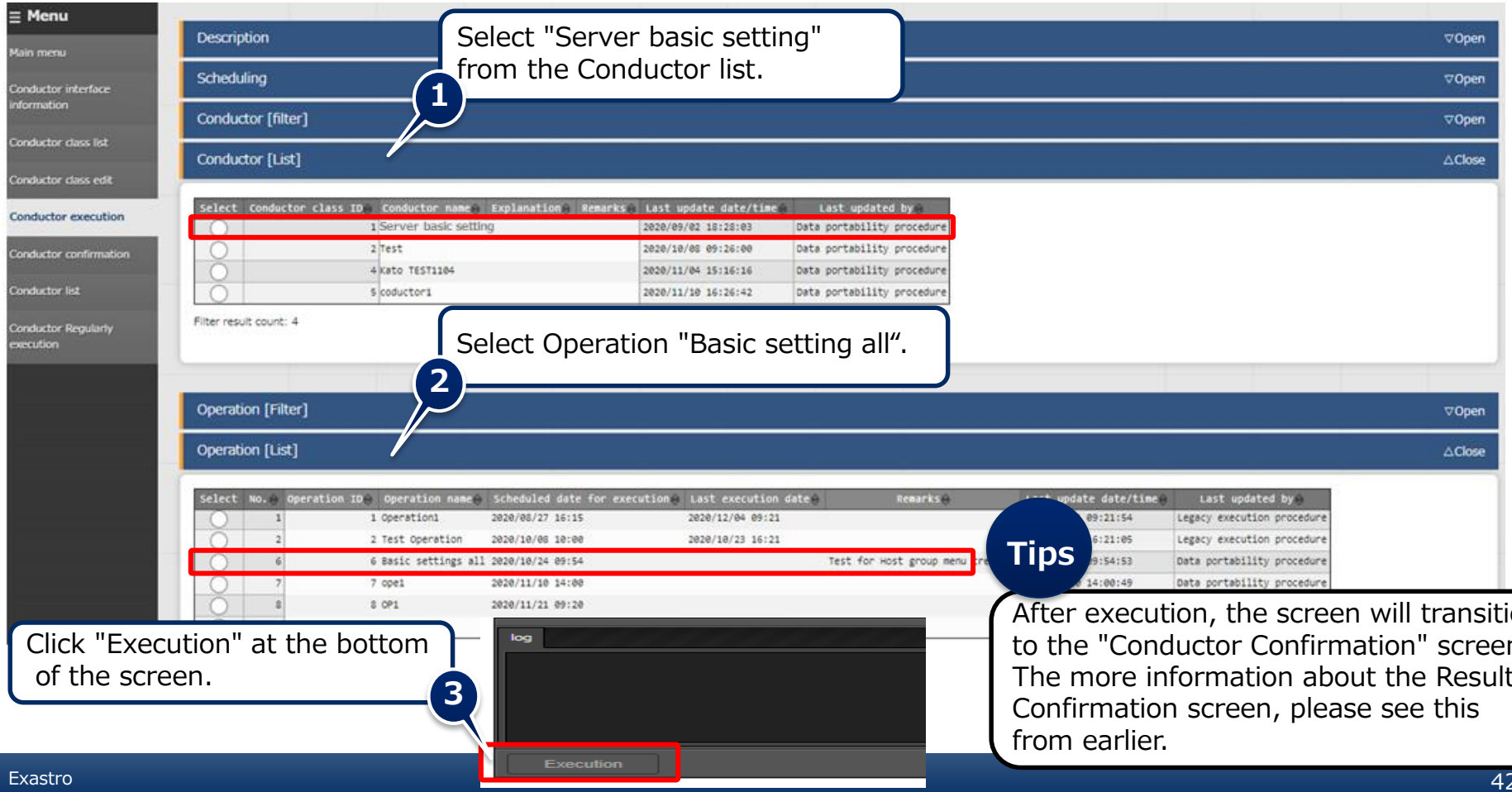
Substitution value list

Update	Discard	Item No.	Operation	Movement	Host	Variable name	Specific value	Substitution order	Remarks	Last update date/time	Last updated by
Update	Discard	1	1:Operation1	1:Legacy1	1:Tsai_test	1:VAR_dir_name	/root/test			2020/09/02 18:20:07	Data portability procedure
Update	Discard	2	1:Operation1	1:Legacy1	1:Tsai_test	2:VAR_owner	root			2020/09/02 18:20:19	Data portability procedure
Update	Discard	3	1:Operation1	1:Legacy1	1:Tsai_test	3:VAR_group	root			2020/09/02 18:20:35	Data portability procedure
Update	Discard	4	1:Operation1	1:Legacy1	1:Tsai_test	4:VAR_mode	0755			2020/09/02 18:20:46	Data portability procedure
Update	Discard	7	Exchange ID has failed(5)	5:Move1	1:Tsai_test	9:VAR_DIRECTORY	testdirectory			2020/10/21 09:42:23	Data portability procedure
Update	Discard	8	8:OP1	11:MV1	1:Tsai_test	12:VAR_directory	/tmp/work1			2020/11/19 10:57:36	System Administrator
Update	Discard	9	9:operation	12:move1	1:Tsai_test	13:VAR_DIRECTORY	testdirectory			2020/12/02 16:44:10	System Administrator

Execute Conductor

Execute Conductor again. Ensure that the work is reflected only on the host "webC".

Menu**: Conductor > Conductor execution**




Exastro