



Data Quality

Big Data
Management

Job Control
System

Metadata
Management

Trinity Advance Training

Angelina Guo
產品行銷副理

課程大綱

- 使用者帳號、角色、群組與權限
- 變數設定
- 自動接收檔案
- 排程設定
- 例外排程設定
- Alias 別名
- Job Flow
- Job Stream
- Job Dependency
- Mutex
- Job Wizard 作業產生器
- 發送 Mail
- 發送通知 Notification
- Metadata 介紹
- Trinity 資源監控
- 備份
- 其他設定
- Pluginlet

基礎課程回顧

- 執行環境/操作介面
- 作業階層架構介紹
 - 建立Business Entity
 - 建立Category
 - 建立Job/Step
- Metadata
 - 從檔案與 DB 匯入 Meta Table
- Resource設定
 - 建立 DB Connection
- Data Management Plug-in 功能介紹、使用方法
- 執行作業
 - 於Task Console中查看

使用者帳號、角色、群組與權限

使用者帳號、角色、群組

- **User 使用者帳號**
 - 為系統中最基本的操作單位，每一個使用者帳號即代表一名使用者，使用者必須以使用者帳號登入 Trinity 才可進行操作。每個使用者帳號可單獨進行授權作業。
- **Role 角色**
 - 用以進行授權管理。
 - 先將使用者帳號列為該角色的角色成員，再對角色進行授權，即可批次控管角色成員當中多個使用者帳號的權限。安裝時已內建四個角色：Administrator, Developer User, Operator User, End User Account Manager, Group Manager，可以自行增加新的角色
 - 一個使用者帳號可以被列入至多個角色，使用者帳號權限則為所屬角色所有權限的累加結果。
- **Group 群組**
 - 用以作為系統發送訊息通知時的接收對象。
 - 一個使用者帳號可以被列入至多個群組中。
- **Trinity 在安裝時只會建立一個管理者的使用者帳號 -- root**
- **使用者認證可以選擇以 Trinity 進行認證或以 LDAP Server 進行認證。**

User - 新增

- Admin UI -> Account(帳號) -> User(使用者)
 - 點擊畫面右上方新增物件的圖示可開啟對話視窗。

The screenshot shows the Trinity5 Admin UI interface. On the left, there is a sidebar with various navigation options: Account, User (highlighted in blue), Role, User Group, Resource, Alias Reference, Domain, and Connection. The main area displays a list of users with columns for User Name, User ID, SSO ID, Activate, Lock, and Description. A search bar and a refresh icon are at the top of the user list. To the right of the list is a large modal dialog titled "User - Add User". The dialog contains fields for User ID (with a required asterisk), Description, User Name (with a required asterisk), Default Language (set to English), User Password, Confirm Password, SSO ID, Local Account checkbox, Mobile Number, Only For Execution checkbox, Email (containing the value "message"), and Home Directory. At the bottom of the dialog are three buttons: Reset, Cancel, and Save.

Trinity5

User

User ID

SSO ID

Activate

Lock

Description

User Name

Search For Name

Trinity Super User

root

trainee1

trainee10

User - Add User

* User ID

Activate

Description

* User Name

Default Language

English

User Password

SSO ID

Confirm Password

Local Account

Mobile Number

Only For Execution

Email

Home Directory

message

Reset

Cancel

Save

User - 維護自己的帳號

- 維護自己的使用者帳號
 - 使用者登入 Admin UI 後，可點選畫面上方自己名稱的位置來更改自己的資料。

The screenshot shows the Admin UI interface for managing users. At the top, there's a navigation bar with icons for dashboard, info, search, and language selection (English). Below the header, a search bar is available. The main area displays a table of users with columns for User Name, User ID, SSO ID, Activation, Last Login Date, Lock status, and Description. One user row for 'trainee15' is expanded into a detailed view. This view includes the user's name, login IP, last login date, and a prominent 'Edit Info' button. To the right of the edit button are two status icons: a green checkmark and a lock symbol. A red box highlights the user profile icon and name 'trainee15' at the top right. A red arrow points to the 'Edit Info' button.

User Name	User ID	SSO ID	Activation	Last Login Date	Lock	Description
Trinity Super User	root			2023-10-17 14:43:29		Trinity Super User
trainee1	trainee1					
trainee10	trainee10					

User - 維護既有的帳號

- Admin UI -> Account(帳號) -> User(使用者)
 - 若需維護既有帳號，點擊該筆資料當中標示底線的值，或點擊該筆資料左方圖示、展開功能選項並點擊“Edit(編輯)”，可開啟該筆資料的“Edit(編輯)”視窗。
 - User ID(帳號)欄位無法更改。
 - 補充說明：如果使用者不是使用 root 帳號登入，而是使用擁有 Administrator 角色的帳號登入的話，則只能夠修改/刪除該使用者所新增的帳號。

User		Search For Name	🔍
User Name	User ID		
☰ trainee1	trainee1		
☰ trainee10	trainee10		
☰ trainee11	trainee11		
☰ trainee12	trainee12		

User		Search For Name	🔍
User Name	User ID		
☰ trainee1	trainee1		
☰ trainee10	trainee10		
☰ trainee11	trainee11		
☰ trainee12	trainee12		

User - 刪除

- Admin UI -> Account(帳號) -> User(使用者)
 - 點擊該筆資料左方圖示、展開功能選項並點擊“Delete(刪除)”進行刪除。

The screenshot shows the Admin UI interface for managing users. At the top, there is a search bar labeled "Search For Name" and a magnifying glass icon. Below the search bar is a table with two columns: "User Name" and "User ID". The table contains four rows of data:

User Name	User ID
trainee1	trainee1
trainee10	trainee10
trainee11	trainee11
trainee12	trainee12

In the second row (trainee10), there is a context menu with options: Lock, Edit, and Delete. The "Delete" option is highlighted with a red box. A confirmation dialog box is displayed at the bottom, titled "Confirm" in blue. The main message in the dialog is "開啟對話視窗確認是否進行刪除" (Open dialog window to confirm whether to delete). Below the message, it asks "Do you really want to delete the account \"trainee10 (trainee10)\" ?". There are two buttons at the bottom right: "Cancel" and "OK".

Role - 新增

- Admin UI -> Account(帳號) -> Role(角色)
 - 點擊畫面右上方新增物件的圖示可開啟對話視窗。

The screenshot shows the Trinity Admin UI interface. On the left, there is a sidebar with various navigation options: Account, User, Role (which is selected and highlighted in orange), User Group, Resource, Alias Reference, Domain, Connection, File Source, JCS Agent, Virtual Agent, and Schedule. The main content area displays a list of existing roles with columns for Name, Description, and Update Time. A red box highlights the '+' icon in the top right corner of the main table header. To the right of the table, a yellow box contains the Chinese character '新增' (Add). In the foreground, a modal dialog box titled 'Role - Add Role' is open. It contains three input fields: 'Name' (marked with a red asterisk), 'Description', and 'Home Directory'. At the bottom of the dialog are three buttons: 'Reset', 'Cancel', and 'Save'.

Name	Description	Update Time
Account Manager	Account Manager	2024-06-20 10:04:37
Administrator	Administrator	2023-03-25 14:38:57
Developer User	Developer User	2023-03-25 14:38:57
End User	End User	2023-03-25 14:38:57
Group Manager	Group Manager	2024-06-20 10:04:44
Owner User	Owner User	2023-03-25 14:38:57

Role - 編輯

- Admin UI -> Account(帳號) -> Role(角色)
 - 點擊該筆資料當中標示底線的值，或點擊該筆資料左方圖示、展開功能選項並點擊“Edit(編輯)”，可開啟該筆資料的“Edit(編輯)”視窗。

Role		Search For Name	Q
Name	Description		
SAMPLE			
<u>Account Manager</u>	Account Manager		
<u>Administrator</u>	Administrator		
<u>Developer User</u>	Developer User		
<u>End User</u>	End User		
<u>Group Manager</u>	Group Manager		
<u>Operator User</u>	Operator User		

Page Size 10 < 1

Role		Search For Name	Q
Name	Description		
SAMPLE			
Edit			
Member	Account Manager		
Permission	Administrator		
Delete	Developer User		
<u>Developer User</u>			
End User	End User		
Group Manager	Group Manager		
Operator User	Operator User		

Page Size 10 < 1

Role - 設定角色成員

- Admin UI -> Account(帳號) -> Role(角色) -> Role-Member(角色-成員)
 - 從主畫面點擊該筆資料左方圖示、展開功能選項並點擊“Member(成員)”，可開啟「Role-Member(角色-成員)」對話視窗。

The screenshot illustrates the process of managing role members. It shows two windows: a main 'Role' window and a detailed 'Role - Member' window.

Main Window (Role): Shows a list of roles. A specific role named 'SAMPLE' is selected, indicated by a red box around its name in the 'Name' column. A context menu is open for this role, with the 'Member' option highlighted and also enclosed in a red box. A red arrow points from this 'Member' option to the 'Role - Member' dialog box.

Detailed Window (Role - Member): This dialog box is titled 'Role - Member - Add'. It displays the selected role name 'SAMPLE' and a search bar labeled 'Search User...'. Below the search bar is a list of users, each with a checkbox and a 'User Name(User ID)' label followed by a '(traineeX)' placeholder. Several checkboxes are checked, and three specific users are highlighted with blue boxes: 'trainee10 (trainee10)', 'trainee11 (trainee11)', and 'trainee12 (trainee12)'. To the right of this list is a 'Confirm List' section containing the same three user entries, each with a 'Delete' button next to it. At the bottom of the dialog are 'Reset', 'Cancel', and 'Save' buttons.

Annotations:

- 新增成員** (Add Member): A yellow box pointing to the 'Add' button in the 'Role - Member' dialog.
- 現有成員** (Existing Member): A yellow box pointing to the list of users in the 'Role - Member' dialog.
- 刪除成員** (Delete Member): An orange box pointing to the 'Delete' buttons in the 'Role - Member' dialog.

Role - 刪除

- Admin UI -> Account(帳號) -> Role(角色)
 - 點擊該筆資料左方圖示、展開功能選項並點擊“Delete(刪除)”進行刪除。

The screenshot shows the Admin UI interface for managing roles. At the top, there's a search bar labeled "Search For Name" and a magnifying glass icon. Below it, a table lists roles with columns for "Name" and "Description". One row is selected, showing "SAMPLE" in the Name column and "Operator" in the Description column. To the left of the table, a context menu is displayed for the selected role. The menu items are: Edit, Member, Permission, Delete, and Developer User. The "Delete" item is highlighted with a red box. A yellow callout box with the text "開啟對話視窗確認是否進行刪除" (Open dialog window to confirm deletion) points to a confirmation dialog box at the bottom. This dialog has a blue header with the word "Confirm" and two buttons at the bottom: "Cancel" and "OK". The main message in the dialog is "Do you really want to delete the role \"SAMPLE\" ?".

User Group - 新增

- Admin UI -> Account(帳號) -> User Group(使用者群組)
 - 點擊畫面右上方新增物件的圖示可開啟對話視窗。

The screenshot shows the Trinity5 Admin UI interface. On the left is a dark sidebar with white icons and labels: Account, User, Role, **User Group** (which is highlighted in orange), Resource, Alias Reference, and Domain. The main area has a light gray header with a home icon, a refresh icon, and a help icon. It displays the text "User Group" and "Search For Name". Below this is a table with columns "Name" (sorted by ascending order), "Description", and "Update Time". A message "No data" is shown. In the top right corner, there are icons for user profile (trainee15), language (English), and a red-bordered "+" button. To the right of the "+" button is a yellow-bordered "新增" (Add) button.

The screenshot shows a modal dialog titled "User Group - Add User Group". It contains two input fields: one labeled "Name" with a red asterisk (*) and another labeled "Description". At the bottom are three buttons: "Reset", "Cancel", and "Save".

User Group - 編輯

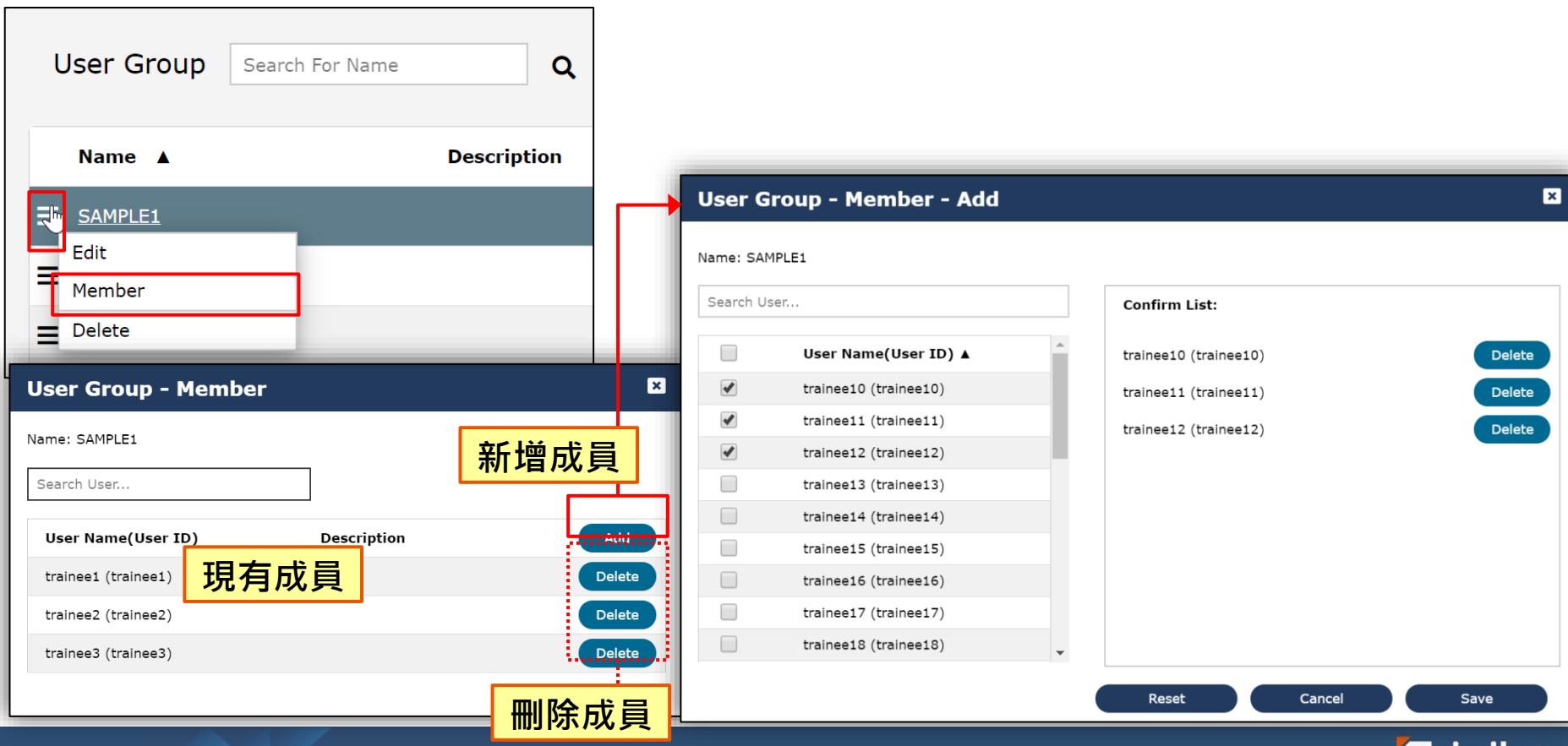
- Admin UI -> Account(帳號) -> User Group(使用者群組)
 - 點擊該筆資料當中標示底線的值，或點擊該筆資料左方圖示、展開功能選項並點擊“Edit(編輯)”，可開啟該筆資料的“Edit(編輯)”視窗。

User Group		Search For Name	Q
Name	Description		
≡ SAMPLE1			
≡ SAMPLE2			
≡ SAMPLE3			

User Group		Search For Name	Q
Name	Description		
≡ SAMPLE1			
≡	Edit		
≡	Member		
≡	Delete		

User Group - 設定群組成員

- Admin UI -> Account(帳號) -> User Group(使用者群組) -> User Group-Member(使用者群組-成員)
 - 從主畫面點擊該筆資料左方圖示、展開功能選項並點擊“Member(成員)”，可開啟「User Group-Member(使用者群組-成員)」對話視窗。



User Group - 刪除

- Admin UI -> Account(帳號) -> User Group(使用者群組)
 - 點擊該筆資料左方圖示、展開功能選項並點擊“Delete(刪除)”進行刪除。

User Group

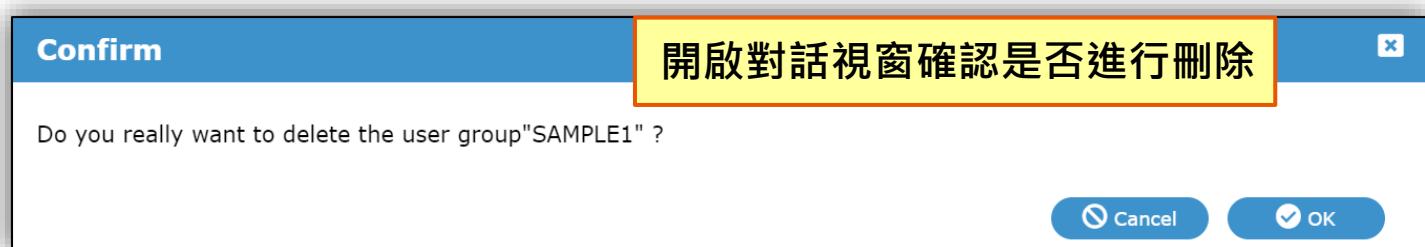
Search For Name

Name	Description
SAMPLE1	

Edit

Member

Delete



Lab 1

建立使用者帳號、角色、群組

Lab 1：建立使用者帳號

- Admin UI -> Account(帳號) -> User(使用者)
 - 點擊畫面右上方新增物件的圖示可開啟對話視窗。

The screenshot shows the Trinity5 Admin UI interface. On the left, there is a sidebar with navigation links: Account, User (selected), Role, User Group, Resource, Alias Reference, Domain, and Connection. The main area displays a list of users with columns: User Name, User ID, SSO ID, Activate, Lock, and Description. A user named 'Trinity_Super_User' is listed with 'root' as the User ID and 'Trinity Super User' as the Description. A red box highlights the 'Add' button (+) in the top right corner of the user list, and a yellow box highlights the 'Add' button (+) in the top right corner of the 'User - Add User' dialog. The 'User - Add User' dialog is open, showing fields for User ID, User Name, User Password, Confirm Password, Description, Default Language (English), SSO ID, Local Account, Only For Execution, Mobile Number, Email, and Home Directory. The 'User ID' field is highlighted with a red border, and the value '自訂' (Custom) is displayed in a yellow box. The 'Save' button at the bottom right of the dialog is also highlighted with a red border.

Lab 1：建立角色

- Admin UI -> Account(帳號) -> Role(角色)
 - 點擊畫面右上方新增物件的圖示可開啟對話視窗。

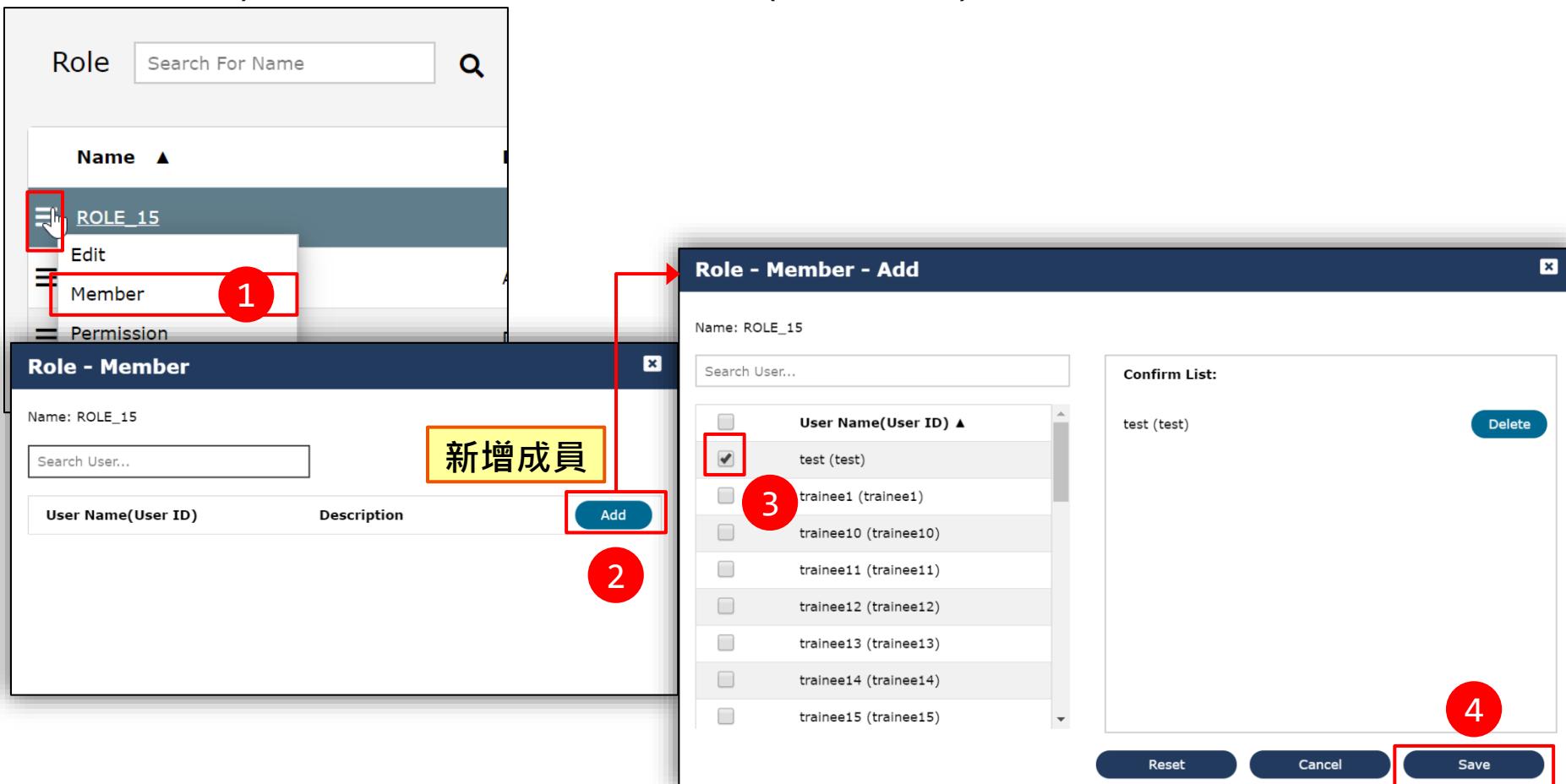
The screenshot shows the Trinity5 Admin UI interface. On the left is a sidebar with various navigation options: Account, User, Role (which is selected and highlighted in blue), User Group, Resource, Alias Reference, Domain, Connection, File Source, JCS Agent, Virtual Agent, and Schedule. The main content area displays a list of existing roles:

Name	Description	Update Time
Account Manager	Account Manager	2024-06-20 10:04:37
Administrator	Administrator	2023-03-25 14:38:57
Developer User	Developer User	2023-03-25 14:38:57
End User	End User	2023-03-25 14:38:57
Group Manager	Group Manager	2024-06-20 10:04:44
Operator User	Operator User	2023-03-25 14:38:57

To the right of the list is a large yellow button labeled "新增" (Add). A red circle with the number "1" is placed over this button. Below the list is a modal dialog titled "Role - Add Role". The dialog contains fields for "Name" (with "ROLE_15" entered and a red box around it), "Description" (empty), and "Home Directory" (empty). To the right of the "Name" field is a yellow button labeled "自訂" (Custom). A red circle with the number "2" is placed over the "Save" button at the bottom right of the dialog.

Lab 1：設定角色成員

- Admin UI -> Account(帳號) -> Role(角色) -> Role-Member(角色-成員)
 - 從主畫面點擊該筆資料左方圖示、展開功能選項並點擊“Member(成員)”，可開啟「Role-Member(角色-成員)」對話視窗。



Lab 1：建立使用者群組

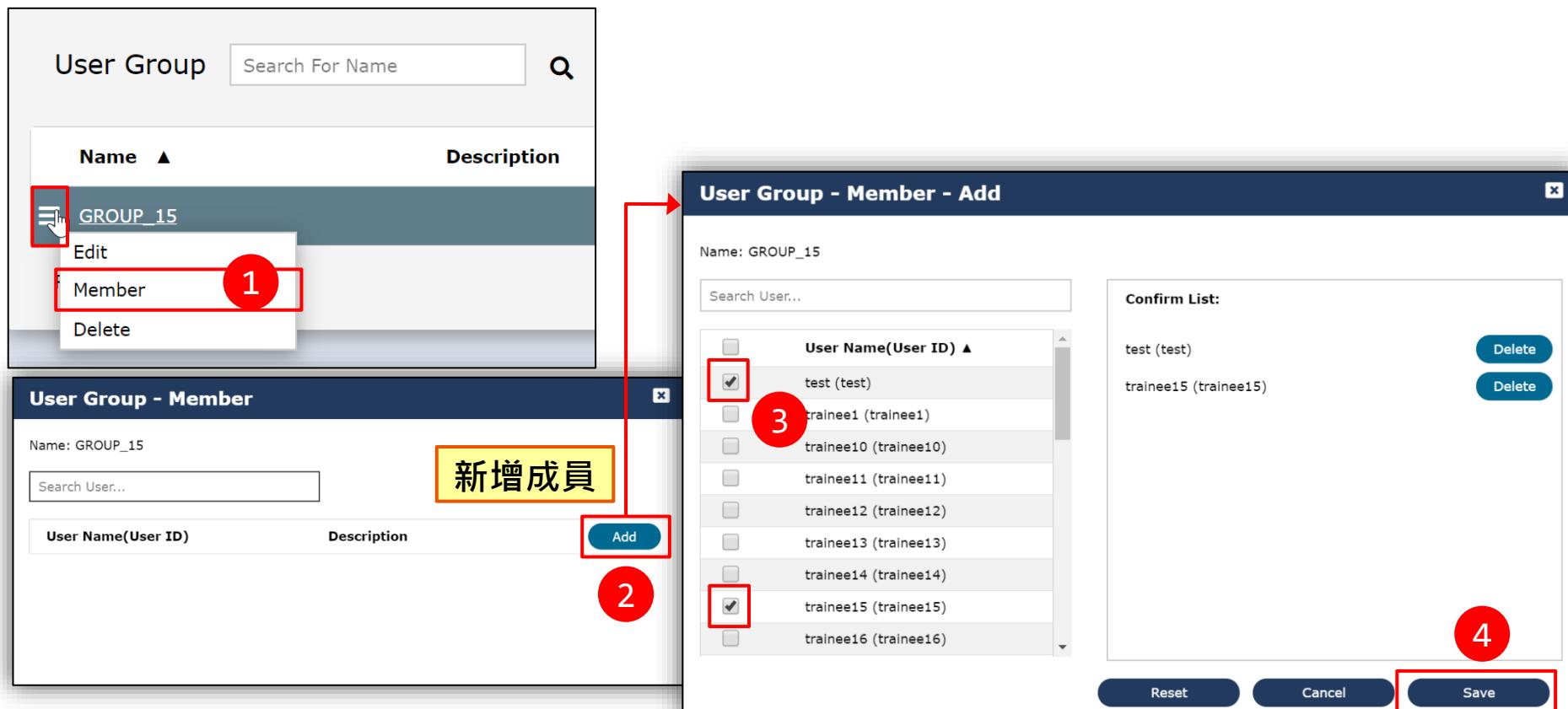
- Admin UI -> Account(帳號) -> User Group(使用者群組)
 - 點擊畫面右上方新增物件的圖示可開啟對話視窗。

The screenshot shows the Trinity Admin UI interface. On the left is a sidebar with icons for Account, User, Role, User Group (which is selected and highlighted in orange), Resource, Alias Reference, and Domain. The main area displays a table titled 'User Group' with columns for Name, Description, and Update Time. A search bar at the top allows searching by name. On the right side of the table are two buttons: a yellow '新增' (Add) button and a red '+' button. A red circle with the number '1' is overlaid on the '+' button, indicating a new action.

The screenshot shows a modal dialog box titled 'User Group - Add User Group'. It contains fields for 'Name' (containing 'GROUP_15') and 'Description'. The 'Name' field is highlighted with a red border. To the right of the 'Name' field is a yellow button labeled '自訂' (Custom). At the bottom of the dialog are three buttons: 'Reset', 'Cancel', and 'Save', with 'Save' also highlighted with a red border. A red circle with the number '2' is overlaid on the 'Save' button.

Lab 1：設定群組成員

- Admin UI -> Account(帳號) -> User Group(使用者群組) -> User Group-Member(使用者群組-成員)
 - 從主畫面點擊該筆資料左方圖示、展開功能選項並點擊“Member(成員)”，可開啟「User Group-Member(使用者群組-成員)」對話視窗。



作業階層權限

- 在 Trinity 中可供設定的作業權限種類一共有七種

權限	說明
View	是指使用者是否對此物件有查看的權限。
Add	是指使用者是否對此物件有新增Job及Job Step的權限。
Edit	是指使用者是否對此物件有進行修改的權限。
Delete	是指使用者是否對此物件有刪除的權限。
Run	是指使用者是否能在TaskConsole介面中對此物件有執行工作的權限。
Rerun	是指使用者是否能在TaskConsole介面中對此物件在執行工作失敗後有重新執行的權限。
Grant	是指使用者是否對此物件有再授權給其他使用者的權限。使用者必需對物件有Grant的權限後才能把自己擁有對物件的權限再授權給其他的使用者。

作業階層權限 - 設定

- Web JF Designer 中對 Business Entity、Category 以及 Job 進行授權。
 - 於功能視圖中點擊權限圖示進入頁面，以滑鼠左鍵雙擊欲授權的項目，即可於右側開啟授權頁面。

The screenshot shows the Trinity5 application interface with the following details:

- Left Sidebar:** Contains icons for various features like File, Design, Tools, and a lock icon (highlighted with a red box). The lock icon is associated with the "Permission" section.
- Central Area:** A tree view under "Permission" shows a hierarchy:
 - Job/Flow/JobDAG
 - DEFAULT [Default Business Entity]
 - ADII
 - 1_GEN_FILE (selected)
 - 2_GEN_ORDERS
 - 3_MOVE_FILE
 - FLOW1
 - FUND
 - OPD
 - Pluginlet
 - StreamJob
 - Mutex
 - Working Calendar Folder
- Right Area:** A detailed view for "Job(1_GEN_FILE)". It includes:
 - Role:** Administrator, Developer User, End User, Operator User.
 - User:** trainee1 [trainee1], trainee10 [trainee10], trainee11 [trainee11], trainee12 [trainee12], trainee13 [trainee13], trainee14 [trainee14], trainee15 [trainee15].
 - A grid table for granting permissions:

Target Type	Target Name	View	Add	Delete	Edit	Run	Rerun	Grant	Import	Export
No Data										

作業階層權限 - 設定

- 按鈕 1：可加入角色及使用者帳號到右側權限設定
- 按鈕 2：可移除所選的角色及使用者帳號權限設定
- 按鈕 3：可清除當前設定內容

*Job(1_GEN_FIL X)

可針對使用者帳號及角色授權

Role	Administrator	Developer User	End User	Operator User							
User	trainee15	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							

1 »
2 «
3 ⏪

若使用者帳號對父節點擁有該權限
· 則對其子節點也擁有該權限。
若使用者帳號的其中一個角色擁有
該權限，則帳號擁有該權限。

Target Type	Target Name	View	Add	Delete	Edit	Run	Rerun	Grant	Import	Export	
User	trainee15	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							

作業階層權限 - 效果

The screenshot shows a software interface for managing jobs, likely a configuration or monitoring tool. It features a sidebar with icons for Job, Flow, Mutex, Calendar, Lock, and a magnifying glass. The main area displays a tree structure of job categories.

Top Left Panel: Shows the root 'Job' category expanded. Under it is 'Job/Flow/JobDAG', which has two sub-items: 'DEFAULT[Default Business Entity]' and 'TRAINEE15_ANGELINA'. A context menu is open over 'TRAINEE15_ANGELINA', listing options: Property, Delete, Refresh (highlighted with a red arrow), Add Category, Add Job Group, Import, and Export. A yellow box labeled '未授權' (Unauthorized) is overlaid on the menu.

Top Right Panel: Similar to the top left, but the 'Refresh' option in the context menu is highlighted with a red arrow, and a yellow box labeled '已授權' (Authorized) is overlaid on the menu.

Bottom Left Panel: Shows the 'Job/Flow/JobDAG' category expanded. Under 'TRAINEE15_ANGELINA', there is a folder named 'LAB1'. Inside 'LAB1', the 'Mutex' category is selected. A context menu is open over 'Mutex', listing: Property, Delete, Refresh (highlighted with a red arrow), Version Control, Add Job, Add Flow, Add JobDAG, Move Category, and Make Link. A yellow box labeled '未授權' (Unauthorized) is overlaid on the menu.

Bottom Right Panel: Similar to the bottom left, but the 'Version Control' option in the context menu is highlighted with a red arrow, and a yellow box labeled '已授權' (Authorized) is overlaid on the menu.

作業階層權限4.1版介紹

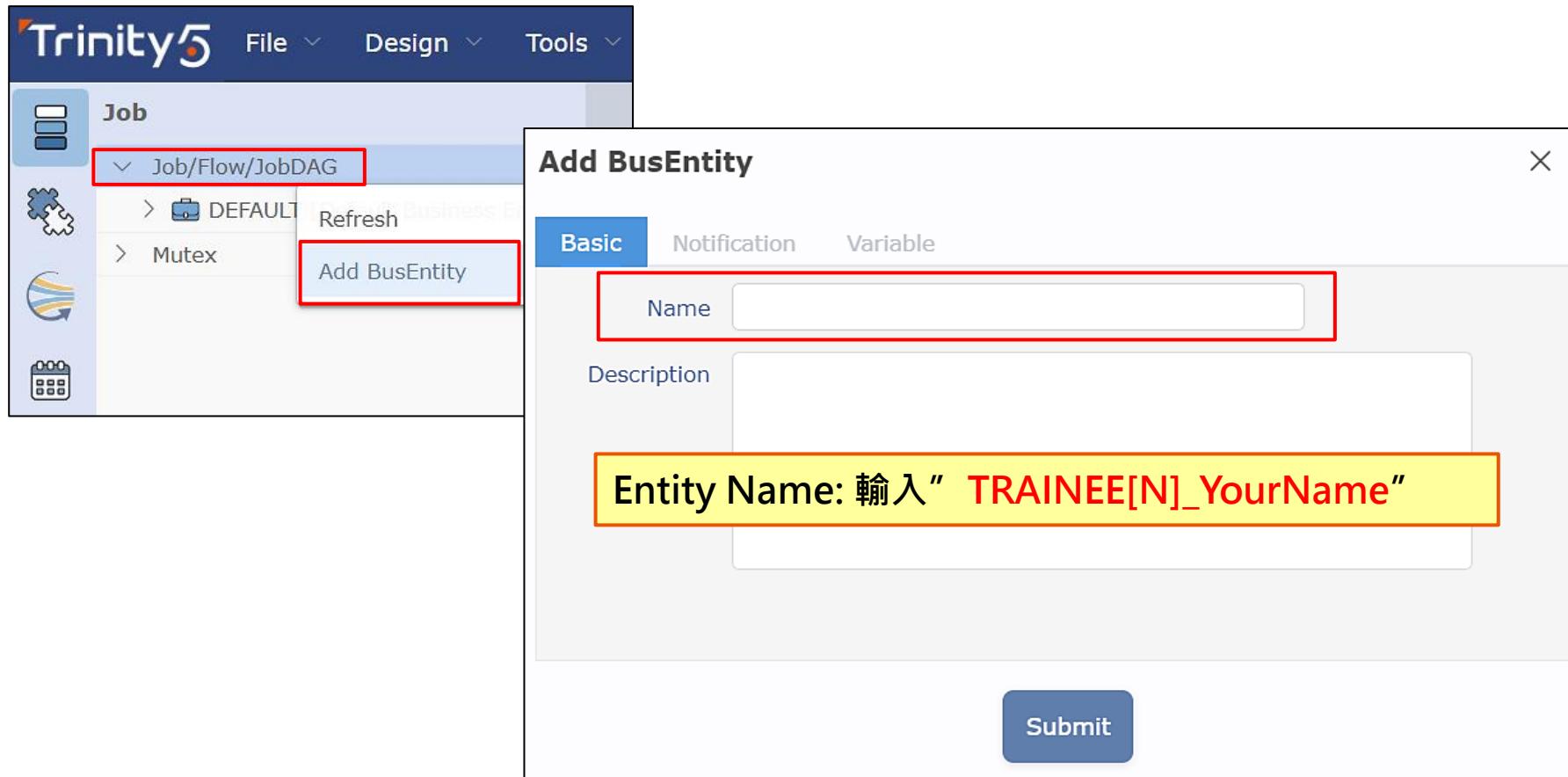
- 作業階層權限4.1版介紹請參閱本講義“附錄1”說明。

Lab 2

建立作業階層

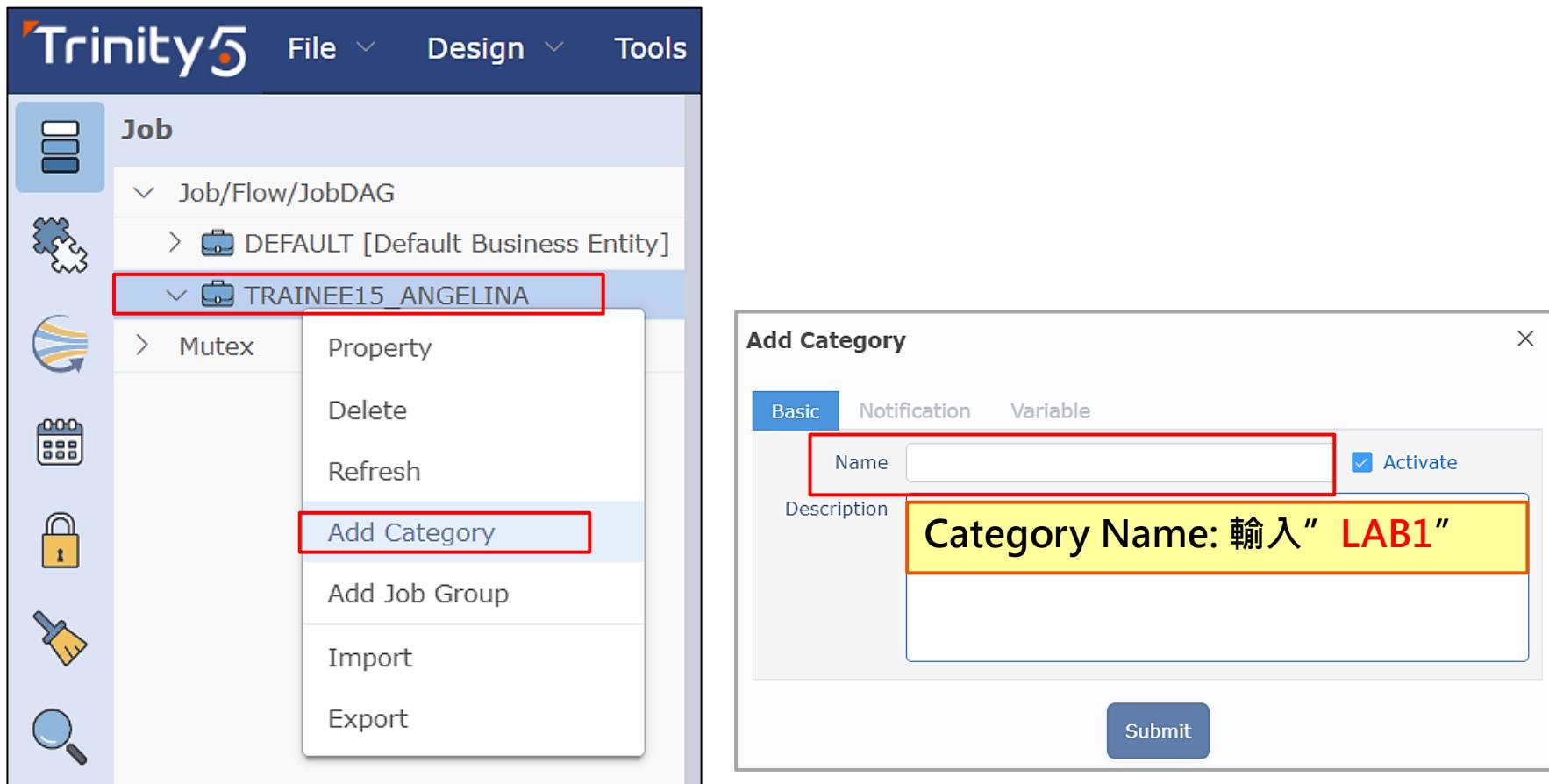
Lab 2 : 建立 Business Entity

- 於Web JF Designer 新增 Business Entity : **TRAINEE[N]_YourName**
 - 於樹狀視圖區” Job/Flow/JobDAG” 上以滑鼠右鍵開啟選單並點選” Add BusEntity” 。



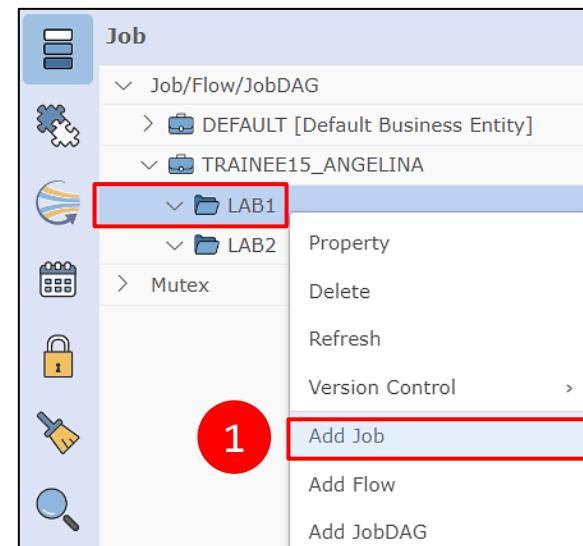
Lab 2 : 建立 Category

- 於Web JF Designer 新增 Category : LAB1
 - 於樹狀視圖區中先選擇目標 Business Entity(TRAINEE[N]_YourNam) 後以滑鼠右鍵開啟選單並點選“ Add Category”。



Lab 2：建立 Job

- 於Web JF Designer 新增 Job : **JOB1**
 - 於樹狀視圖區中先選擇目標 Category(**LAB1**) 後以滑鼠右鍵開啟選單並點選” Add Job” 。
- 完成後將設定更新到數據庫中：
 - 點選工具列” Save ” 圖示，或直接以建盤輸入 **Ctrl+S** 進行。

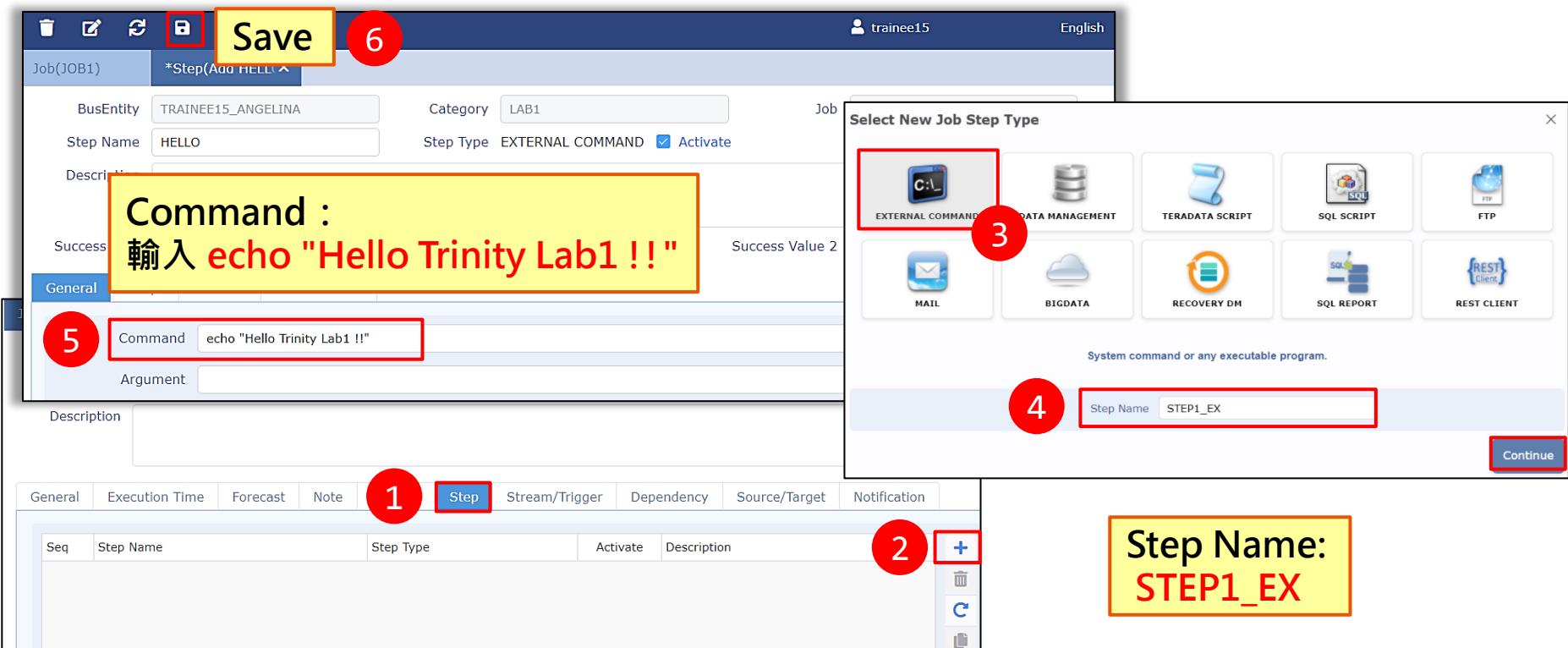


Name : 輸入 “JOB1”
Agent : 選擇 “LOCAL_AGENT”

Lab 2：建立 Job Step

- 於Web JF Designer 新增 Step : **STEP1_EX**

- 點選” Save” 後於Job編輯畫面中點選” Step” 頁簽，點選畫面中右側加號” Add Step” 圖示。
- 新增 Step 時選擇類型” **External Command**” 並編輯 Step 頁簽，完成後將設定更新到數據庫中。



Lab 2：於Web JF Designer 進行授權

- 於Web JF Designer進行授權：
 - 於功能視圖中點擊權限圖示進入頁面，以滑鼠左鍵雙擊欲授權的項目，即可於右側開啟授權頁面。

The screenshot shows the 'Permission' module of the Web JF Designer. On the left, a sidebar lists various entities under 'Permission' (Job/Flow/JobDAG, BusEntity, Working Calendar Folder) and features (Padlock, Paintbrush, Magnifying Glass). A red box highlights the 'Padlock' icon and the 'TRAINEE15' entry under 'BusEntity(TRAINEE1 X)'. The main panel displays a grid of permissions for 'User trainee15' across different target types and actions.

Target Type	Target Name	View	Add	Delete	Edit	Run	Rerun	Grant	Import	Export
User	trainee15	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						

變數設定

Domain 介紹

- Domain 領域

- 用以定義變數。
- 在一個Domain當中可定義多個變數。
- 可建立多個Domain。
- Domain定義完成後，只要在設計 Job 時選用該Domain，即可在作業當中透過指定格式引用變數，以取代特定的語句，使作業維護更加彈性。
 - 指定格式為 \${變數名稱}，例如： \${TEST1}。

The screenshot displays two windows from the Trinity software interface:

***Job(JOB1) X** (Left Window):

- BusEntity: TRAINEE15
- Name: JOB1
- Description: (empty)
- General Tab (selected): Domain is set to SAMPLE1.
- Execution Time, Forecast, Note, Variable, Step, Stream/Trigger tabs are visible but not selected.
- Frequency: Select
- Retry Option: Retry After Job Failed, From Beginning, Retry Interval: 1 min

***Job(JOB1) *Step(Add STEP X)** (Right Window):

- BusEntity: TRAINEE15
- Category: TEST
- Step Name: STEP1
- Step Type: EXTERNAL COM
- Description: (empty)
- Success Rule: Equal To, Success Value 1: 0
- General Tab (selected): Command is set to echo \${TEST1}.
- Script, Statistic, Postcondition tabs are visible but not selected.
- Argument: (empty)
- Encoding: (empty)

Domain - 新增

- Admin UI -> Resource(資源) -> Domain(領域)
 - 點擊畫面右上方新增物件的圖示可開啟對話視窗。

The screenshot shows the Trinity5 Admin UI interface. On the left, there is a sidebar with the following navigation items:

- Account
- User
- Role
- User Group
- Resource
- Alias Reference
- Domain** (highlighted)
- Connection

The main content area displays a list of domains with columns for Name, Description, and Update Time. Two buttons are visible on the right: a yellow button labeled "新增" (Add) and a red button with a plus sign (+). A modal dialog box titled "Domain - Add Domain" is open in the foreground. It contains fields for "Name" (SAMPLE3) and "Description". Below these are two tabs: "Domain Variable" and "Domain Resource". The "Domain Variable" tab is active, showing a table with columns "Name" and "Value". There is an "Add" button with a plus icon and a "Delete" button. At the bottom of the dialog are three buttons: "Reset", "Cancel", and "Save".

Domain - 編輯

- Admin UI -> Resource(資源) -> Domain(領域)
 - 點擊該筆資料當中標示底線的值，或點擊該筆資料左方圖示、展開功能選項並點擊“Edit(編輯)”，可開啟該筆資料的“Edit(編輯)”視窗。

This screenshot shows a list of domains. The first column contains icons for expanding/collapsing rows, and the second column contains the domain names: Global, Default, SAMPLE1, SAMPLE2, and SAMPLE3. The row for 'SAMPLE1' is highlighted with a grey background and has a red box around its name. A hand cursor icon is positioned over the 'SAMPLE1' name.

This screenshot shows the same domain list as the previous one, but the 'SAMPLE1' row is now fully expanded. A context menu is displayed over the 'SAMPLE1' name, with 'Edit' selected and highlighted by a red box. Other options in the menu include 'Copy' and 'Delete'. A red box also highlights the 'Edit' option in the menu.

Domain - 刪除

- Admin UI -> Resource(資源) -> Domain(領域)
 - 點擊該筆資料左方圖示、展開功能選項並點擊“Delete(刪除)”進行刪除。

The screenshot shows the Admin UI interface for managing domains. At the top, there's a search bar labeled "Search For Name" and a magnifying glass icon. Below it is a table with columns "Name" and "Descr". Two rows are visible: "Global" and "Default". The third row, "SAMPLE1", is selected and has a context menu open. The menu items are "Edit", "Copy", and "Delete". The "Delete" item is highlighted with a red box. A yellow callout box points to a confirmation dialog window titled "Confirm" with the message "開啟對話視窗確認是否進行刪除". The dialog also contains the question "Do you really want to delete the domain \"SAMPLE1\" ?" and two buttons: "Cancel" and "OK".

Domain - 複製

- Admin UI -> Resource(資源) -> Domain(領域)
 - 點擊該筆資料左方圖示、展開功能選項並點擊“Copy(複製)”進行複製。

The screenshot shows the Admin UI interface for managing domains. On the left, a list of domains is displayed with a search bar at the top. A context menu is open for the domain named "SAMPLE1". The "Copy" option in this menu is highlighted with a red box. On the right, a modal window titled "Domain - Copy" is open, prompting for a new domain name and description. Below these fields is a table for defining variables or resources. A yellow callout box points to the table area with the text "可編輯視窗中的設定內容後再複製" (Edit the settings in the dialog before copying). The modal also contains "Reset", "Cancel", and "Save" buttons at the bottom.

Domain

Search For Name

Name ▲

Descr

Global

Default

SAMPLE1

Edit

Copy

Delete

Domain - Copy

Copy Domain:SAMPLE1

*Name

Description

Domain Variable Domain Resource

Name Value

TEST1 123

Add Delete

可編輯視窗中的設定內容後再複製

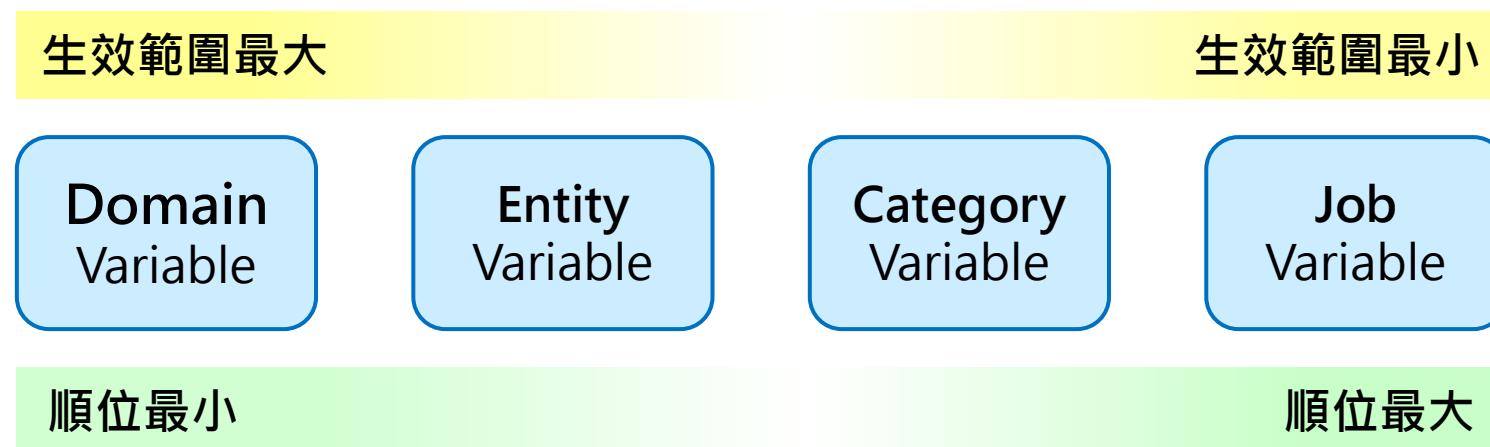
Reset Cancel Save

工作變數

- **作業階層變數**
 - 除了可用 Domain 自訂變數之外，也可在作業階層自訂變數，包含
 - Business Entity Variable
 - Category Variable
 - Job Variable
- **Trinity 內建系統工作變數**
 - 此類變數不需人為定義，其值由系統自動產生。
 - 例如： \${TXDATE}、 \${TXDATE1}、 \${ENTITYNAME}、 \${CATEGORYNAME}、 \${JOBNAME}、 \${STEPNAME}、 \${TASKSTATUS}
- **工作變數使用方式**
 - 使用時必須是以“ \$” 字符為開頭，並以左右大括號將變數名稱包含在內，例如 \${V1}。Trinity 會在執行作業前將變數替換成實際的內容後執行。
 - 這些變數除了可在設定屬性中引用外，還可在 External Command Step 執行時設定在環境變數中使用。

變數名稱衝突處理

- 若 Domain variable、Entity variable、Category variable、Job variable 當中變數名稱相同，則執行時會以生效範圍最小的階層為主。
 - 依序如下：



- 舉例說明：

建立 Domain variable V1 = www.aa.bb

建立 Entity variable V1 = /home/netpro/share

建立 Category variable V1 = abc

建立 Job variable V1 = 100

Job 實際執行時
\${V1} 會代換為 100

Lab 3

建立變數

Lab 3 : 建立 Domain

- Admin UI -> Resource(資源) -> Domain(領域)
 - 點擊畫面右上方新增物件的圖示可開啟對話視窗。

The screenshot shows the Trinity5 Admin UI interface. On the left, there is a sidebar with navigation links: Account, User, Role, User Group, Resource (which is selected), Alias Reference, Domain (highlighted with a red border), and Connection. The main area displays a list of domains, with one entry named "SAMPLE1". A red circle labeled "1" is positioned over the "Add" button in the top right corner of the domain list. Below this, a modal window titled "Domain - Add Domain" is open. Inside the modal, the "Name" field contains "TRAINEE15", which is highlighted with a yellow box and a red border. A red circle labeled "2" is placed over the "Add" button in the bottom right corner of the modal. At the bottom of the modal, there are three buttons: "Reset", "Cancel", and "Save", with "Save" being highlighted with a red border. A red circle labeled "3" is placed over the "Save" button. In the center of the modal, there is a table with two tabs: "Domain Variable" and "Domain Resource". Under "Domain Variable", there is a row with "Name" set to "VAR1" and "Value" set to "trainee15". A yellow box highlights the text "Name: VAR1" and "Value: trainee[N]".

連線設定

Connection 介紹

- **Connection 連線資訊**
 - Trinity 中會將作業執行時所使用的連線資訊集中管理，且可獨立授權。
- **Connection 可分為多種類型：**
 - Database
 - FTP
 - JDBC
 - Mail
 - OS Account
 - NoSQL
 - ...
- **Connection 中包含了以下資訊：**
 - Server Information
 - Connection String(JDBC URL)
 - User ID
 - Password
- **Connection 可以在多個不同的作業設定中被使用。**

Connection 功能首頁

- 包含 Connection 與 Connection Category，後者用於管理 Connection。
- Connection 可被建立於不分類(/) ，或透過建立 Connection Category 並建立於其中來分類管理。

The screenshot shows the Trinity5 application interface for managing connections. The left sidebar menu includes options like Account, User, Role, User Group, Resource, Alias Reference, Domain, Connection (which is selected), File Source, JCS Agent, Virtual Agent, Schedule, Working Calendar, Frequency, and Exclude Frequency. The main content area has two sections: 'Connection Category' on the left and 'Connection' on the right. The 'Connection Category' section lists categories: /, SAMPLE1, SAMPLE2, and SAMPLE3. The 'Connection' section lists three connections: LOCAL_FTP (FTP, 2023-03-25 14:38:57), LOCAL_TP (JDBC, 2023-03-25 14:38:57), and TRAINEE_TEST (JDBC, 2023-03-25 14:38:57). Both sections have search bars and a red box highlights the 'Connection Category' and 'Connection' sections.

Name	Category	Type	Description	Update Time
LOCAL_FTP	/	FTP		2023-03-25 14:38:57
LOCAL_TP	/	JDBC		2023-03-25 14:38:57
TRAINEE_TEST	/	JDBC		2023-03-25 14:38:57

Connection - 新增 Connection Category

- Admin UI -> Resource(資源) -> Connection(連線)
 - 點擊 Connection Category 區塊右上方的新增物件圖示可開啟對話視窗。

The screenshot shows the Trinity Admin UI interface. The left sidebar has a dark blue background with white icons and labels: Account, User, Role, User Group, Resource, Alias Reference, Domain, Connection (which is highlighted with an orange bar), File Source, JCS Agent, Virtual Agent, Schedule, Working Calendar, Frequency, and Exclude Frequency. The main content area has a light gray header with the Trinity logo, user info (trainee15, English), and navigation icons. Below the header is a table titled "Connection" showing connection categories. A yellow callout box highlights the "Category" column header and the "+" button in the top right of the table header. The table lists three entries: SAMPLE1, SAMPLE2, and SAMPLE3. To the right of the table is a search bar and a refresh icon. At the bottom of the screen, a modal dialog is open with the title "Connection Category - Add Connection Category". It contains two input fields: "*Name" and "Description", both currently empty. At the bottom right of the modal are three buttons: "Reset", "Cancel", and "Save".

Category	Type	Description	Update Time
SAMPLE1	FTP		2023-03-25 14:38:57
SAMPLE2	JDBC		2023-03-25 14:38:57
TRAINEE_TEST	JDBC		2023-03-25 14:38:57

Connection Category - Add Connection Category

*Name:

Description:

Reset Cancel Save

Connection - 新增 Connection

- Admin UI -> Resource(資源) -> Connection(連線)
 - 點擊 Connection 區塊右上方的新增物件圖示可開啟對話視窗。

The screenshot shows the Trinity Admin UI interface. On the left, there's a sidebar with various navigation options like Account, User, Role, User Group, Resource, Alias Reference, Domain, Connection (which is selected and highlighted in orange), File Source, JCS Agent, and Virtual Agent. The main area shows a list of connections under a 'Category' column. Three connections are listed: SAMPLE1, SAMPLE2, and SAMPLE3. To the right of this list is a modal dialog titled 'Connection'. Inside the dialog, there's a 'Category : /' input field, a search bar labeled 'Search For Name', and a table listing three connections: LOCAL_FTP (FTP), LOCAL_TP (JDBC), and TRAINEE_TEST (JDBC). The 'Connection' button in the sidebar and the 'Category : /' input field in the dialog are both highlighted with red dashed boxes. A large yellow box highlights the '新增 Connection' button in the dialog. Another yellow box highlights the 'Category : /' input field in the dialog with the text '代表新增的 connection 未分類'.

Name	Category	Type	Description	Update Time
LOCAL_FTP	/	FTP		2023-03-25 14:38:57
LOCAL_TP	/	JDBC		2023-03-25 14:38:57
TRAINEE_TEST	/	JDBC		2023-03-25 14:38:57

Connection - 新增 Connection

- 於對話視窗中，針對不同類型(Type)的連線，有專屬的連線設定資訊。

Connection - Add Connection

*Name	<input type="text"/>	Description
*Type	<input type="text" value="Database"/> Database FTP JDBC Mail OS Account Hadoop NoSQL AWS S3 Azure GCS	<input type="text"/>
*Server Name	<input type="text"/>	<input type="text"/>
*Account	<input type="text"/>	*Password
<input type="checkbox"/> PIM		
Reset Cancel Save		

Connection/Connection Category - 編輯

- 點擊該筆資料當中標示底線的值，或點擊該筆資料左方圖示、展開功能選項並點擊“Edit(編輯)”，可開啟該筆資料的“Edit(編輯)”視窗。
- Connection/Connection Category 操作方式同理。

The screenshot illustrates the workflow for editing a connection. It consists of three main windows:

- Left Window:** Shows a list of connections under "Connection Category". It lists "/SAMPLE1" and "LOCAL_FTP". The "LOCAL_FTP" entry is highlighted with a red box.
- Middle Window:** A detailed view of the "LOCAL_FTP" connection. It shows the connection name and its type as "FTP".
- Right Window:** An "Edit" dialog for the "LOCAL_FTP" connection. The "Name" field is set to "LOCAL_TP". A context menu is open over this field, with the "Edit" option highlighted by a red box. Other options in the menu include "Copy", "Move", "Permission", and "Delete".

Connection/Connection Category - 刪除

- 點擊該筆資料左方圖示、展開功能選項並點擊“Delete(刪除)”進行刪除。
- Connection/Connection Category 操作方式同理。

The screenshot shows the 'Connection' management interface. On the left, there's a sidebar with 'Connection Category' and a '+' button. Below it is a list containing a single item: 'SAMPLE1'. The main area is titled 'Connection' and shows a table with columns 'Name', 'Type', and 'Description'. There are two entries: 'LOCAL_FTP' (Type: FTP) and 'LOCAL_TP' (Type: JDBC). A context menu is open over the 'LOCAL_TP' row, with options: Edit, Copy, Move, Permission, and Delete. The 'Delete' option is highlighted with a red box. A confirmation dialog box at the bottom asks 'Do you really want to delete the connection "LOCAL_TP"?' with 'Cancel' and 'OK' buttons. A yellow box highlights the text '開啟對話視窗確認是否進行刪除' (Open dialog window to confirm deletion).

Connection

Connection Category : /

Search For Name

Name ▲ Type Description

LOCAL_FTP FTP

LOCAL_TP JDBC

Edit
Copy
Move
Permission
Delete

Confirm

Do you really want to delete the connection "LOCAL_TP" ?

Cancel OK

開啟對話視窗確認是否進行刪除

Connection - 複製

- 點擊該筆資料左方圖示、展開功能選項並點擊“Copy(複製)”進行複製。

The screenshot shows the 'Connection - Copy' dialog box. In the background, there's a list of connections on the left with 'LOCAL_TP' selected. A context menu is open for 'LOCAL_TP', with 'Copy' highlighted. The main dialog has fields for Name, Type (JDBC), Database Type (PostgreSQL), JDBC Driver (org.postgresql.Driver), JDBC URL (jdbc:postgresql://192.168.1.100:5432/trinity), Account (trinity), and Password (*****). The 'Category' dropdown is expanded, showing options like /, SAMPLE1, SAMPLE2, and SAMPLE3, with SAMPLE3 selected. A yellow callout box highlights the 'Category' dropdown and contains the following text:

- 可指定目的地的 Connection Category
(“/” 代表不分類)
- 可編輯視窗中的其他設定內容後再複製。

At the bottom of the dialog are 'Reset', 'Cancel', and 'Save' buttons.

Connection - 移動

- 點擊該筆資料左方圖示、展開功能選項並點擊“Move(移動)”進行管理。

The screenshot shows the 'Connection' management interface. On the left, there's a list of connections with columns for Name, Type, and Description. Two connections are visible: 'LOCAL_FTP' (FTP) and 'LOCAL_TP' (JDBC). The 'LOCAL_TP' row has a context menu open, with 'Move' highlighted and surrounded by a red box. A modal window titled 'Connection - Move' is displayed at the bottom, containing fields for 'Name' (set to 'LOCAL_TP') and 'Category'. The 'Category' dropdown is open, showing options: '/', 'SAMPLE1', 'SAMPLE2', and 'SAMPLE3'. The 'SAMPLE1' option is selected and highlighted with a blue background and a red border. A yellow callout box on the right side of the modal contains the following points:

- 指定移動至指定的 Connection Category ("/" 代表不分類)
- 可編輯視窗中的其他設定內容後再移動。

Connection - 權限

- 點擊該筆資料左方圖示、展開功能選項並點擊“Permission(權限)”進行管理。
- 預設呈現既有的權限設定內容。
- 設定內容分為「Account(帳號)」頁面與「Role(角色)」頁面，可分別設定。
- 可針對既有的設定內容直接勾選或取消勾選來進行修改。
- 按下「Delete(刪除)」可刪除畫面上該筆資料。

Connection

Connection Category : /

Search For Name

Name ▲
LOCAL_FTP
LOCAL_TP

Edit **Copy** **Move** **Permission** **Delete**

Connection - Permission

Name: TRAINEE15

Account	Role
User Name(User ID) trainee15 (trainee15)	<input checked="" type="checkbox"/> View <input checked="" type="checkbox"/> Use <input checked="" type="checkbox"/> Delete <input checked="" type="checkbox"/> Edit <input checked="" type="checkbox"/> Grant

Add **Delete**

Reset **Cancel** **Save**

Lab 4

建立 Connection

Lab 4 : 建立 Connection

- Admin UI -> Resource(資源) -> Connection(連線)
 - 點擊 Connection 區塊右上方的新增物件圖示可開啟對話視窗。

The screenshot shows the Trinity5 Admin UI interface. On the left, there is a sidebar with the following navigation items:

- Account
- User
- Role
- User Group
- Resource
- Alias Reference
- Domain
- Connection** (highlighted in orange)
- File Source
- JCS Agent
- Virtual Agent

The main content area has a header with icons for Home, Refresh, and Help. To the right of the header are user information (trainee15) and language selection (English). Below the header is a search bar labeled "Search For Name" and a "Connection" section title.

Connection

Category : /

Search For Name

Name ▲ Type Description

Name	Type	Description
LOCAL_FTP	FTP	2023-03-25 14:38:57
LOCAL_TP	JDBC	2023-03-25 14:38:57
TRAINEE_TEST	JDBC	2023-03-25 14:38:57

A yellow callout box with a black border and white text is overlaid on the interface, containing the text "新增 Connection".

Lab 4 : 建立 Connection

- 設定完畢按下“Test Connection”確認連線是否正常。
- 按下“Save(儲存)”確認存檔。

Connection - Add Connection

*Name	TRAINEE15	Description
*Type	JDBC	Name: TRAINEE[N] Type: JDBC
*Database Type	PostgreSQL	Test Connection Database Type: PostgreSQL JDBC Driver: (自動帶入)
*JDBC Driver	org.postgresql.Driver	
*JDBC URL	jdbc:postgresql://192.168.17.111/trainee15	
*Account	trainee15	*Password *****

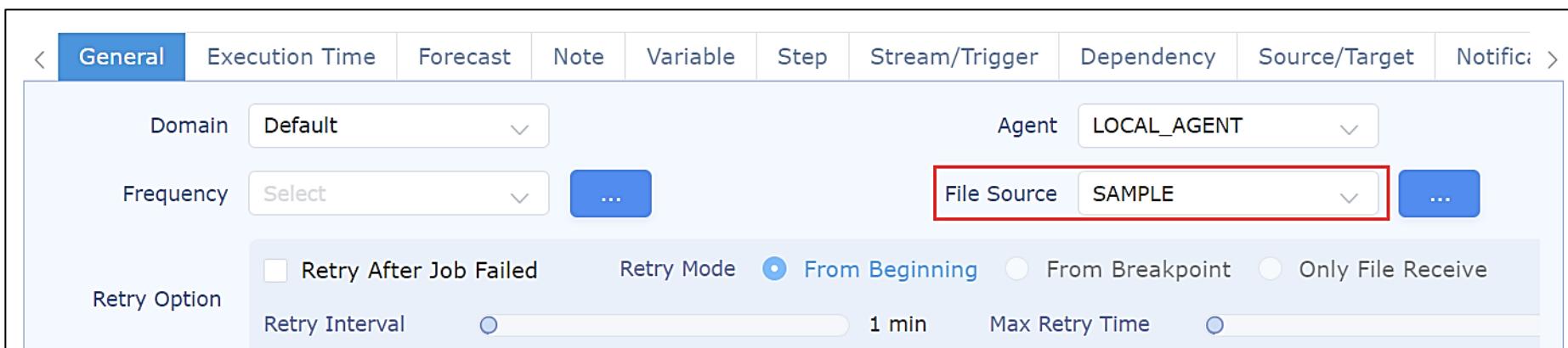
JDBC URL: **jdbc:postgresql://192.168.17.111/trainee[N]**
Account: **trainee[N](資料庫連線帳號)**
Password: ********(資料庫連線密碼)**

Cancel Save

自動接收檔案

File Source 介紹

- 當一個工作是必須要處理資料檔案時，可定義檔案來源(File Source)，使 Trinity 在工作執行之前自動接收檔案。
 - 所接收的資料檔案可為 Agent 上的檔案，或自外部來源端以 FTP 方式傳遞過來的檔案，或是由其它的作業所產生的檔案。
 - 運用 Trinity File Source 機制，只要在設計 Job 時選用 File Source 定義，即可在 Job 執行時決定要接收哪個目錄下的特定名稱檔案，並且會根據 File Source 的定義內容，來檢核檔案接收數量及檔案完整性。
 - File Source 定義完成後，只要在設計 Job 時選用該定義即可使用。



File Source 功能首頁

- 包含 File Source 與 File Source Category，後者用於管理 File Source。
- File Source 可被建立於不分類(/)，或透過建立 File Source Category 並建立於其中來分類管理。

The screenshot shows the Trinity5 application interface for managing File Sources. On the left, a dark sidebar menu lists various system components: Account, User, Role, User Group, Resource, Alias Reference, Domain, Connection, File Source (which is highlighted in orange), JCS Agent, Virtual Agent, Schedule, Working Calendar, Frequency, and Exclude Frequency.

The main content area is divided into two main sections:

- File Source Category:** This section is enclosed in a red box and contains a table with one row, showing the category as "OPD".
- File Source:** This section is also enclosed in a red box and contains a table listing four entries, each with a name starting with "TRAINEE_TEST" and categorized under "OPD".

Below these sections, there are two yellow boxes labeled "File Source Category" and "File Source" respectively.

Name	Category	Description	Update Time
TRAINEE_TEST1	OPD		2023-03-25 14:38:57
TRAINEE_TEST2	OPD		2023-03-25 14:38:57
TRAINEE_TEST3	OPD		2023-03-25 14:38:57
TRAINEE_TEST4	OPD		2023-03-25 14:38:57

File Source - 新增 File Source Category

- Admin UI -> Resource(資源) -> File Source(檔案來源)
 - 點擊 File Source Category 區塊右上方的新增物件圖示可開啟對話視窗。

The screenshot shows the Trinity Admin UI interface. On the left, there is a sidebar with various navigation options: Account, User, Role, User Group, Resource (selected), Alias Reference, Domain, Connection, File Source (highlighted in orange), JCS Agent, Virtual Agent, Schedule, Working Calendar, Frequency, and Exclude Frequency. The main content area displays a list of 'File Source' categories under the heading 'File Source'. A yellow box highlights the 'Category' column header and the 'File Source Category' entry. A red box highlights the '+' button in the top right corner of the list table. Below the list, a modal dialog titled 'Filesource Category - Add Filesource Category' is open. It has fields for 'Name' and 'Description', both currently empty. At the bottom of the dialog are three buttons: 'Reset', 'Cancel', and 'Save'.

Category	Description	Update Time
/		
OPD		
TRAINEE_TEST1	OPD	2023-03-25 14:38:57
TRAINEE_TEST2	OPD	2023-03-25 14:38:57
TRAINEE_TEST3	OPD	2023-03-25 14:38:57
TRAINEE_TEST4	OPD	2023-03-25 14:38:57

File Source - 新增 File Source

- Admin UI -> Resource(資源) -> File Source (檔案來源)
 - 點擊 File Source 區塊右上方的新增物件圖示可開啟對話視窗。

The screenshot shows the Trinity5 Admin UI interface. On the left, there is a navigation sidebar with various options like Account, User, Role, User Group, Resource, File Source (which is selected and highlighted in orange), JCS Agent, Virtual Agent, Schedule, Working Calendar, Frequency, and Exclusions. The main content area has a title 'File Source' and a sub-section 'Category : /'. A red dashed box highlights the 'File Source' section. In the center, there is a search bar with 'File Source' and 'Category : /' and a search icon. To the right, a table lists four entries: TRAINEE_TEST1, TRAINEE_TEST2, TRAINEE_TEST3, and TRAINEE_TEST4, all categorized as OPD. A yellow box labeled '新增 File Source' (Add New File Source) is overlaid on the top right of the table. Another yellow box at the bottom right contains the text '代表新增的 File Source 未分類' (Represents newly added File Source, unclassified).

Name	Category	Description	Update Time
TRAINEE_TEST1	OPD		2023-03-25 14:38:57
TRAINEE_TEST2	OPD		2023-03-25 14:38:57
TRAINEE_TEST3	OPD		2023-03-25 14:38:57
TRAINEE_TEST4	OPD		2023-03-25 14:38:57

File Source - 新增 File Source

- “Directory” 頁面當中需定義 File Source 目錄，共 6 個：

File Source - Add Filesource

Name	Description
Root Directory	<input type="text"/> Generate
*Received Directory	
*Corrupt Directory	
*Target Directory	
*Duplicate Directory	
*Complete Directory	
*Error Directory	

作業開始執行時收檔路徑

作業執行中之檔案路徑

作業執行完畢，依照執行結果，移動檔案至對應路徑

Reset **Cancel** **Save**

File Source - 新增 File Source

- “Setting” 頁面當中需定義檔案名稱、檢查方式與收檔方式，簡述如下：

File Source - Add Filesource

Name	Description	
<input type="text"/>	<input type="text"/>	
Directory	Setting	File Trigger
<input type="text"/> *File Name Pattern	<input type="button"/> From Beginning <input type="text"/> *Start Position <input type="text"/> 0 <input type="text"/> *End Position <input type="text"/> 0	
File Type <input checked="" type="radio"/> Data File <input type="radio"/> Control File	Trinity Default	
Check Mode <input type="checkbox"/> Check Duplication <input type="radio"/> Filter Out All <input checked="" type="radio"/> Filter Out Duplicates	<input type="checkbox"/> Checksum <input type="text"/> *.checksum <input checked="" type="radio"/> MD5 <input type="radio"/> SHA1	
Amount of Files <input type="text"/> *Min 1 <input type="text"/> *Max 5 for <input type="radio"/> Data File <input type="radio"/> Control File	<input type="text"/> *Timeout(minutes) 3	
FTP Get <input type="checkbox"/> FTP Get <input type="checkbox"/> SFTP <input type="checkbox"/> FTP Binary Mode <input type="checkbox"/> Passive Mode	<input type="text"/> *FTP Connection <input type="button"/> Please Select	
<input type="text"/> *FTP Remote Directory		
<input type="text"/> *Post FTP Action <input type="button"/> Do Nothing	<input type="text"/> *move to	
Others <input type="checkbox"/> Success If No File	<input type="checkbox"/> Append Task UID in File Name	

Buttons: Reset, Cancel, Save

}} 檔名 Pattern

}} 檔案型態

}} 檔案完整性檢核

}} 檔案數量、等檔時間

}} FTP 取檔設定、其他

File Source - 新增 File Source

- “File Trigger” 頁面配合 File Watcher 服務使用，可達成“到檔後自動觸發作業執行”的目的。

File Source - Add Filesource

*Name	Description
<input type="text"/>	<input type="text"/>

Directory Setting **File Trigger**

File Trigger

Override TxDate

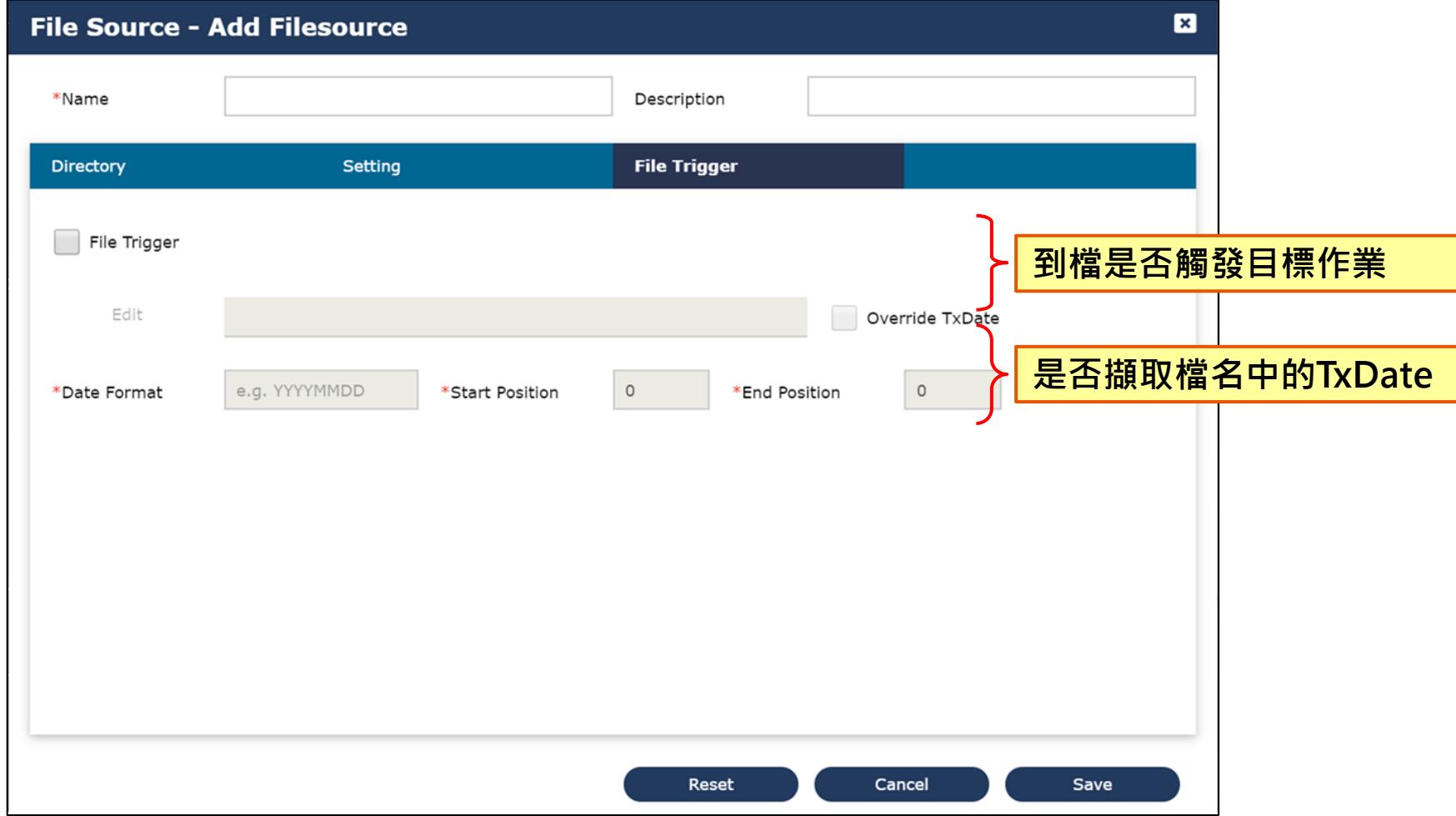
Edit

*Date Format e.g. YYYYMMDD *Start Position 0 *End Position 0

到檔是否觸發目標作業

是否擷取檔名中的TxDate

Reset Cancel Save



File Source/File Source Category - 編輯

- 點擊該筆資料當中標示底線的值，或點擊該筆資料左方圖示、展開功能選項並點擊“Edit(編輯)”，可開啟該筆資料的“Edit(編輯)”視窗。
- File Source/File Source Category 操作方式同理。

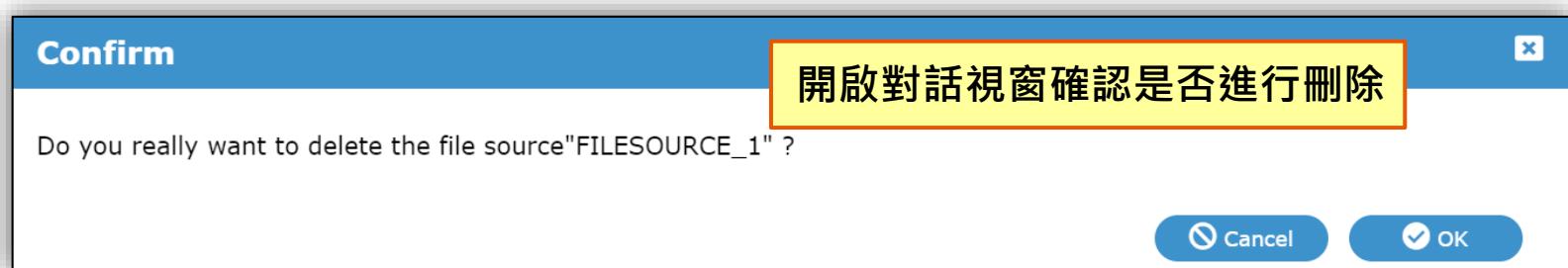
The screenshot displays three windows illustrating the editing process for File Sources and File Source Categories.

- Left Window:** Shows the "File Source Category" list. It includes a header with "Filesource Category" and icons for refresh, search, and add. Below is a tree view with nodes: /, SAMPLE1, SAMPLE2, and SAMPLE3. The node "FILESOURCE_1" under / is highlighted with a red box and has a cursor icon pointing at it.
- Middle Window:** Shows the "File Source" list. It has a header with "Filesource Category : /". Below is a table with columns "Name" and "Description". It lists FILESOURCE_1, FILESOURCE_2, and FILESOURCE_3. The row for FILESOURCE_1 is highlighted with a red box.
- Right Window:** Shows a context menu for the selected "FILESOURCE_1" in the middle window. The menu items are: Edit (highlighted with a red box), Copy, Move, and Delete. The "Edit" item is also highlighted with a red box.

File Source/File Source Category - 刪除

- 點擊該筆資料左方圖示、展開功能選項並點擊“Delete(刪除)”進行刪除。
- File Source/File Source Category 操作方式同理。

The screenshot shows the 'File Source' interface. On the left, there's a sidebar with 'Filesource Category' and three items: SAMPLE1, SAMPLE2, and SAMPLE3. In the main area, there's a search bar and a table with columns 'Name' and 'Description'. A row for 'FILESOURCE_1' is selected. A context menu is open over this row, with options: Edit, Copy, Move, and Delete. The 'Delete' option is highlighted with a red box.



File Source - 複製

- 點擊該筆資料左方圖示、展開功能選項並點擊“Copy(複製)”進行複製。

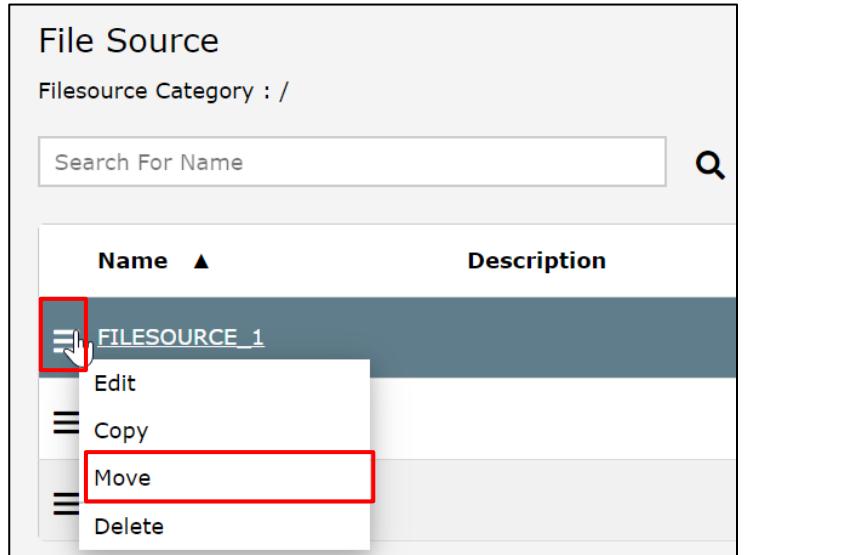
The screenshot shows the 'File Source' interface. On the left, there's a list of sources with 'FILESOURCE_1' selected. A context menu is open, with 'Copy' highlighted by a red box. The main window is titled 'File Source - Copy'. It contains fields for 'Name' (set to 'FILESOURCE_1') and 'Category' (set to '/'). A dropdown menu under 'Category' shows options: '/' (selected), 'SAMPLE1', 'SAMPLE2', and 'SAMPLE3'. A yellow callout box points to this dropdown with two bullet points:

- 可指定目的地的 File Source Category
(“/”代表不分類)
- 可編輯視窗中的其他設定內容後再複製。

Below the category section, there are fields for 'Root Directory', 'Received Directory', 'Corrupt Directory', 'Target Directory', 'Duplicate Directory', and 'Complete Directory', each with a corresponding input field.

File Source - 移動

- 點擊該筆資料左方圖示、展開功能選項並點擊“Move(移動)”進行管理。



The screenshot shows the 'File Source' management interface. On the left, there's a search bar and a table with columns 'Name' and 'Description'. A context menu is open for a row named 'FILESOURCE_1'. The 'Move' option in this menu is highlighted with a red box. To the right, a yellow callout box contains two bullet points:

- 指定移動至指定的 File Source Category
(“/”代表不分類)
- 可編輯視窗中的其他設定內容後再移動。

Below the main interface, a smaller window titled 'File Source - Move' is shown. It has fields for 'Name' (FILESOURCE_1) and 'Category'. The 'Category' dropdown menu is open, showing options: '/', SAMPLE1, SAMPLE2, and SAMPLE3. The 'SAMPLE1' option is highlighted with a blue selection bar. At the bottom of this window are 'Reset', 'Cancel', and 'Save' buttons.

Lab 5

建立 File Source

Lab 5 : 建立 File Source

- Admin UI -> Resource(資源) -> File Source(檔案來源)
 - 點擊 File Source 區塊右上方的新增物件圖示可開啟對話視窗。

The screenshot shows the Trinity5 Admin UI interface. On the left, there is a sidebar with the following navigation items:

- Account
- User
- Role
- User Group
- Resource
 - Alias Reference
 - Domain
 - Connection
 - File Source (highlighted)
 - JCS Agent
 - Virtual Agent
- Schedule
- Working Calendar
- Frequency
- Exclude Frequency

The main content area displays the 'File Source' list. At the top right of this list, there is a yellow box containing the text '新增 File Source' (Add New File Source) next to a red-bordered '+' button. The list table has columns: Name, Category, Description, and Update Time. The data in the table is as follows:

Name	Category	Description	Update Time
TRAINEE_TEST1	OPD		2023-03-25 14:38:57
TRAINEE_TEST2	OPD		2023-03-25 14:38:57
TRAINEE_TEST3	OPD		2023-03-25 14:38:57
TRAINEE_TEST4	OPD		2023-03-25 14:38:57

At the bottom of the list, there are buttons for Page Size (10), navigation arrows, and a page number indicator (1).

Lab 5 : 建立 File Source

- 設定“Directory”頁面

File Source - Add File Source

Directory	Setting	File Trigger
*Name Description	TRAINEE15_FS	Name: TRAINEE[N]_FS
Root Directory	/home/netpro/share/training/\${VAR1}	Generate
*Received Directory	/home/netpro/share/training/\${VAR1}/Receive	
*Target Directory	/home/netpro/share/training/\${VAR1}/Target	
*Complete Directory	/home/netpro/share/training/\${VAR1}/Completed	
*Corrupt Directory	/home/netpro/share/training/\${VAR1}/Corrupt	
*Duplicate Directory	/home/netpro/share/training/\${VAR1}/Duplicate	
*Error Directory	/home/netpro/share/training/\${VAR1}/Error	

**Root Directory: 輸入
*/home/netpro/share/training/\${VAR1}***

按下“Generate”按鈕

Reset Cancel Save

Lab 5 : 建立 File Source

- 設定“Setting”頁面
- 設定完畢，按下“Save(儲存)”確認存檔。

File Source - Add Filesource

*Name	TRAINEE15_FS1	Description				
Directory	Setting	File Trigger				
File Name Pattern	file_.txt	File Name Pattern: file_*.txt				
From Beginning	*Start Position 0	*End Position 0				
File Type	Data File	Control File				
Check Mode	Check Duplication	Filter Out All	Filter Out Duplicates			
	Checksum	*File Extension .checksum	MD5	SHA1		
Amount of Files	*Min 1	*Max 10	for	Data File	Control File	*Timeout(minutes) 0
FTP Get	SFTP	FTP Binary Mode	Passive Mode	FTP Connection	Please Select	
	*FTP Remote Directory					
	*Post FTP Action					
Others	Success If No File	Append Task UID in File Name				

**Amount of File:
Min 1, Max 10, Timeout 0**

File Name Pattern: file_*.txt

File Type: Data File

Check Mode: Filter Out Duplicates

Amount of Files: Min 1, Max 10, Timeout 0

Post FTP Action: Do Nothing

Others: Success If No File

Buttons: Reset, Cancel, Save

排程設定

Frequency

- Frequency (任務排程)

- 用以定義排程內容，使得一個或多個作業得以藉由此定義而在某個特定的時間自動執行。
- Frequency 定義完成後，可以套用在多個 Job (作業) 或多個 Job Flow (作業流程)，只要在設計 Job 時選用該定義即可使用。

The screenshot displays two configuration windows side-by-side. The left window is titled '*Job(JOB1) X' and the right window is titled '*Flow(FLOW X)'. Both windows have a top header with fields for BusEntity, Name, Category, Job Type, and an 'Activate' checkbox. Below the header are tabs for General, Execution Time, Forecast, Note, Variable, Step, Stream/Trigger, Dependency, Source/Target, and Notification. In the General tab of the Job window, there is a 'Frequency' dropdown set to 'FREQ1' which is highlighted with a red box. In the General tab of the Flow window, there is also a 'Frequency' dropdown set to 'FREQ1' which is also highlighted with a red box. Other visible settings include 'Domain' (Default), 'Agent' (LOCAL_AGENT), and various retry options.

Frequency 功能首頁

- 包含 Frequency 與 Frequency Category，後者用於管理 Frequency。
- Frequency 可被建立於不分類(/) ，或透過建立 Frequency Category 並建立於其中來分類管理。

The screenshot shows the Trinity5 application interface. The left sidebar contains navigation links for Account, Resource, Schedule, and System. The 'Frequency' link under 'Schedule' is highlighted with a red box and labeled 'Frequency Category'. The main content area has two tabs: 'Frequency Category' and 'Frequency'. The 'Frequency Category' tab shows a list with one item: 'SAMPLE1'. The 'Frequency' tab shows a list with one item: 'FREQ1'.

Frequency Category

Category
/
SAMPLE1

Frequency

Name	Category	Activate	Description	Update Time
FREQ1	/	✓		2023-12-05 14:25:47

Frequency - 新增 Frequency Category

- Admin UI -> Schedule(排程) -> Frequency(頻率)
 - 點擊 Frequency Category 區塊右上方的新增物件圖示可開啟對話視窗。

The screenshot shows the Trinity5 Admin UI interface. The left sidebar contains navigation links for Account, User, Role, User Group, Resource, Alias Reference, Domain, Connection, File Source, JCS Agent, Virtual Agent, Schedule, Working Calendar, Frequency (which is selected and highlighted in orange), Exclude Frequency, System, Configuration, and Server Monitor. The main content area displays a list of Frequency categories. A red box highlights the '+' icon in the top right corner of the list header. Below the list, a yellow box highlights the title '新增 Frequency Category'. At the bottom, a modal dialog titled 'Category - Add Frequency Category' is open, containing fields for 'Name' and 'Description', and buttons for 'Reset', 'Cancel', and 'Save'.

Category	Frequency	Activate	Description	Update Time
/	Category : /			
SAMPLE1	FREQ1	✓		2023-12-05 14:25:47

Category - Add Frequency Category

Name:

Description:

Reset Cancel Save

Frequency - 新增 Frequency

- Admin UI -> Schedule(排程) -> Frequency(頻率)
 - 點擊 Frequency 區塊右上方的新增物件圖示可開啟對話視窗。

The screenshot shows the Trinity5 Admin UI interface. On the left, the navigation sidebar includes sections for Account (User, Role, User Group), Resource (Alias Reference, Domain, Connection, File Source, JCS Agent, Virtual Agent), and Schedule (Working Calendar, Frequency, Exclude). The 'Frequency' item in the Schedule section is highlighted with a red dashed box and labeled 'Frequency' and 'Category : /'. In the main content area, a dialog box titled 'Frequency' is open, also with a red dashed box around its title and category field. The dialog contains a search bar and a table with columns Name, Category, Activate, and Description. One row is listed: FREQ1, /, checked (green checkmark), and 2023-12-05 14:25:47. To the right of the dialog, a yellow box highlights the '+' button with the text '新增 Frequency'. The top right corner of the screen shows the user 'trainee15' and language 'English'.

Name	Category	Activate	Description
FREQ1	/	✓	2023-12-05 14:25:47

Frequency - 新增 Frequency

- 有六種執行日期的類型，分別為 Daily、Weekly、Monthly、By Calendar、By Working Calendar、By Pattern。
- 有兩種執行時間的類型，可以指定每個小時皆執行，或特定時間執行。

Frequency - Add Frequency

*Name:

Description:

Date Type: Daily Weekly Monthly Calendar Working Calendar Manually

Time Type: Every Hour Selected Time

Selected Time: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55

Buttons: Reset, Cancel, Save

Selected Time Detail:

Hours	Minutes
6	0
12	0

Buttons: Batch, Add, Delete, Delete

Frequency/Frequency Category - 編輯

- 點擊該筆資料當中標示底線的值，或點擊該筆資料左方圖示、展開功能選項並點擊“Edit(編輯)”，可開啟該筆資料的“Edit(編輯)”視窗。
- Frequency/Frequency Category 操作方式同理。

The screenshot illustrates the editing process for Frequency and Frequency Category in a software application.

Left Panel: Shows a list of items under "Frequency". It includes "Frequency Category" (with a refresh and plus icon), three entries labeled "SAMPLE1", "SAMPLE2", and "SAMPLE3", and three entries under "Frequency" labeled "FREQUENCY1", "FREQUENCY2", and "FREQUENCY3". The "FREQUENCY1" entry is highlighted with a red box.

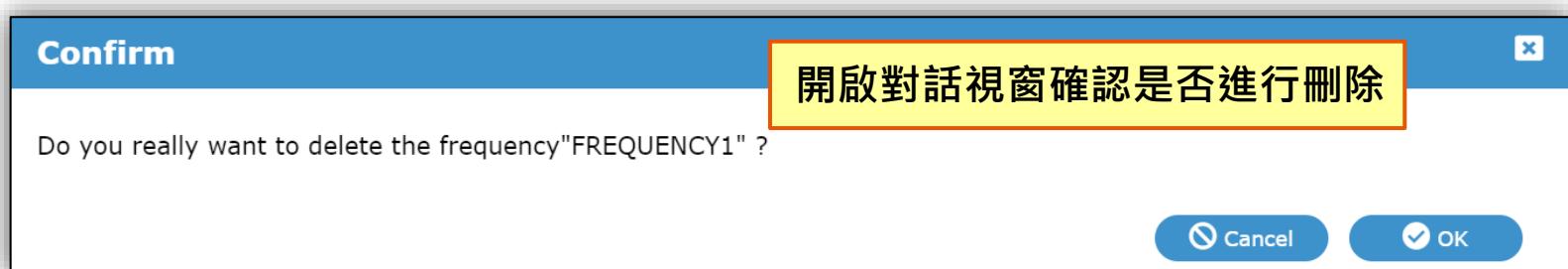
Middle Panel: A detailed view of the "Frequency" category. It shows a search bar and a table with columns for "Name" and "Description". The "FREQUENCY1" row is selected and highlighted with a blue background. A context menu is open over this row, with "Edit" option highlighted by a red box.

Right Panel: A separate "Frequency" view window. It has a search bar and a table with columns for "Name" and "Description". The "FREQUENCY1" row is selected and highlighted with a blue background. A context menu is open over this row, with "Edit" option highlighted by a red box.

Frequency/Frequency Category - 刪除

- 點擊該筆資料左方圖示、展開功能選項並點擊“Delete(刪除)”進行刪除。
- Frequency/ Frequency Category 操作方式同理。

The screenshot shows the 'Frequency' management interface. On the left, there's a sidebar with a table header 'Frequency Category' and rows for 'SAMPLE1', 'SAMPLE2', and 'SAMPLE3'. A context menu is open over the row 'FREQUENCY1'. The menu items are 'Edit', 'Copy', 'Move', and 'Delete', with 'Delete' highlighted by a red rectangle. The main panel displays a search bar 'Search For Name' and a table with columns 'Name' and 'Description'. The row for 'FREQUENCY1' is selected and highlighted in blue.



Frequency - 複製

- 點擊該筆資料左方圖示、展開功能選項並點擊“Copy(複製)”進行複製。

The screenshot shows the 'Frequency' management interface. On the left, a list of frequencies is displayed with a context menu open over 'FREQUENCY1'. The 'Copy' option in the menu is highlighted with a red box. The main window is titled 'Frequency - Copy' and contains fields for 'Name' (set to 'FREQUENCY1'), 'Category' (set to '/'), 'Description', 'Date Type' (set to 'Daily'), 'Time Type' (set to 'Every Hour'), and a time selector with options from 0 to 55 in increments of 5. A yellow callout box highlights two points: '可指定目的地的 Frequency Category ("/" 代表不分類)' and '可編輯視窗中的其他設定內容後再複製。' The 'Category' dropdown is also highlighted with a red box, showing options like '/', 'SAMPLE1', 'SAMPLE2', and 'SAMPLE3', with 'SAMPLE1' selected.

- 可指定目的地的 Frequency Category ("/" 代表不分類)
- 可編輯視窗中的其他設定內容後再複製。

Frequency - 移動

- 點擊該筆資料左方圖示、展開功能選項並點擊“Move(移動)”進行管理。

Frequency

Frequency Category : /

Search For Name Q

Name ▲	Description
FREQUENCY1	

☰
Edit
☰
Copy
☰ Move Move
Delete

- 指定移動至指定的 Frequency Category
(“/” 代表不分類)
- 可編輯視窗中的其他設定內容後再移動。

Frequency - Move

*Name	<input type="text" value="FREQUENCY1"/>	*Category	<input type="text" value="/"/>
Description	<input type="text"/>		

Reset Cancel Save

SAMPLE1
SAMPLE2
SAMPLE3

Working Calendar

- Working Calendar (工作日曆)
 - 此功能用來設定作業的執行日期，例如可以訂為每月中的某幾天、每星期中的某幾天、每一天甚至是訂為某些特定的日子。
 - Working Calendar 定義完成後，可以在設定 Frequency 時“Date Type”選擇“Working Calendar”時套用作為執行日期。

Frequency - Add Frequency

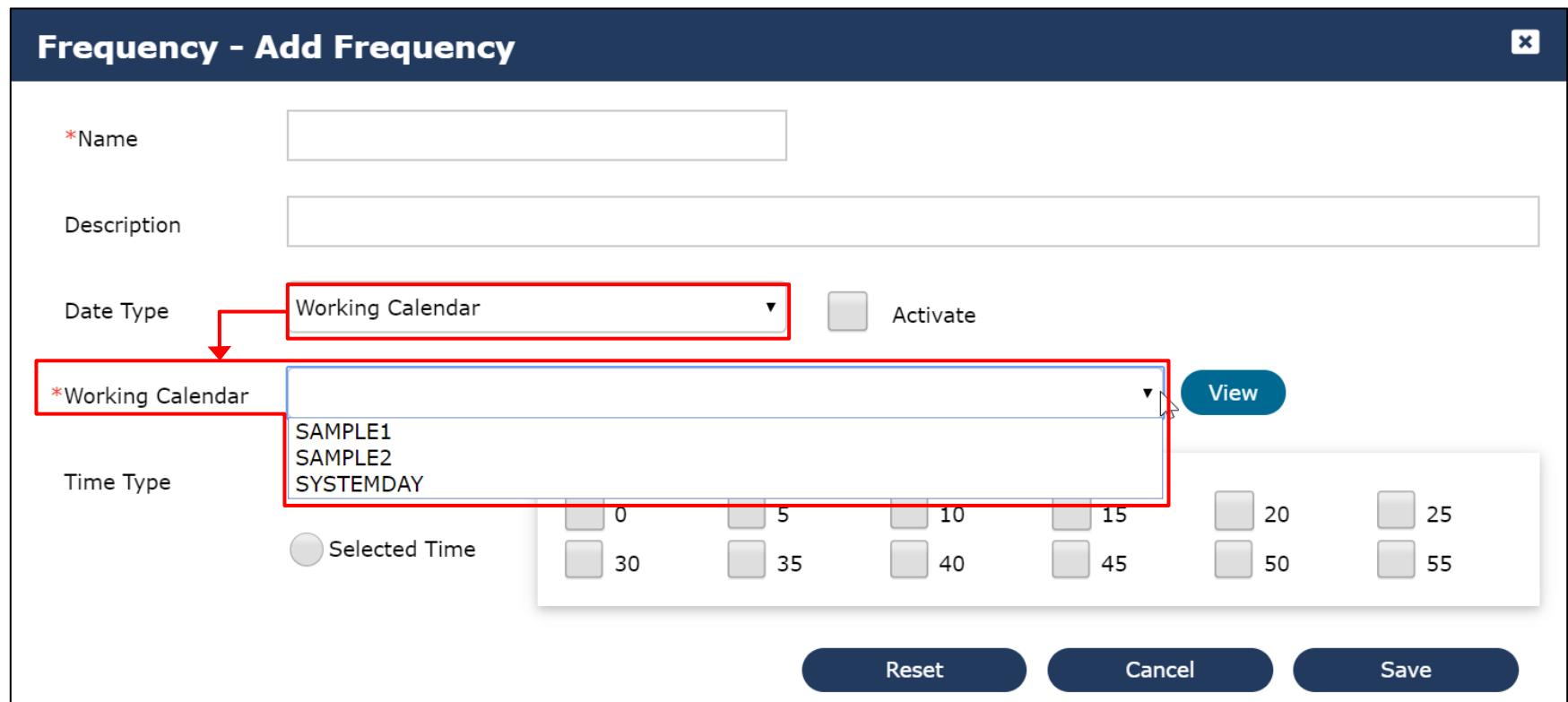
*Name

Description

Date Type Activate

*Working Calendar

Time Type Selected Time 0 5 10 15 20 25
 30 35 40 45 50 55



Working Calendar - 新增

- Admin UI -> Schedule(排程) -> Working Calendar(工作日曆)
 - 點擊畫面右上方新增物件的圖示可開啟對話視窗。

The screenshot shows the Trinity5 Admin UI interface. On the left, there is a sidebar with various menu items: Account, User, Role, User Group, Resource, Alias Reference, Domain, Connection, File Source, JCS Agent, Virtual Agent, Schedule, Working Calendar (which is highlighted), Frequency, and Exclude Frequency. The main area is titled "Working Calendar" and includes a search bar and a "New" button. A modal dialog titled "Working Calendar - Add Working Calendar" is open in the center. This dialog has fields for "Name" and "Description", and an "Activate" checkbox. Below the dialog is a large calendar grid for the year 2020, showing months from January to June. At the bottom of the dialog are buttons for "By Pattern", "Clear All", "Reset", "Cancel", and "Save".

Working Calendar

Search For Name

New

Working Calendar - Add Working Calendar

Name

Description

Activate

2020

January							February							March						
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
29	30	31	1	2	3	4	26	27	28	29	30	31	1	23	24	25	26	27	28	29
5	6	7	8	9	10	11	2	3	4	5	6	7	8	1	2	3	4	5	6	7
12	13	14	15	16	17	18	9	10	11	12	13	14	15	8	9	10	11	12	13	14
19	20	21	22	23	24	25	16	17	18	19	20	21	22	15	16	17	18	19	20	21
26	27	28	29	30	31	1	23	24	25	26	27	28	29	22	23	24	25	26	27	28
2	3	4	5	6	7	8	1	2	3	4	5	6	7	29	30	31	1	2	3	4

April							May							June						
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
29	30	31	1	2	3	4	26	27	28	29	30	1	2	31	1	2	3	4	5	6
5	6	7	8	9	10	11	3	4	5	6	7	8	9	7	8	9	10	11	12	13
12	13	14	15	16	17	18	10	11	12	13	14	15	16	14	15	16	17	18	19	20
19	20	21	22	23	24	25	17	18	19	20	21	22	23	21	22	23	24	25	26	27
26	27	28	29	30	1	2	24	25	26	27	28	29	30	28	29	30	1	2	3	4
3	4	5	6	7	8	9	31	1	2	3	4	5	6	5	6	7	8	9	10	11

By Pattern

Clear All

Reset

Cancel

Save

Working Calendar - 編輯

- Admin UI -> Schedule(排程) -> Working Calendar(工作日曆)
 - 點擊該筆資料當中標示底線的值，或點擊該筆資料左方圖示、展開功能選項並點擊“Edit(編輯)”，可開啟該筆資料的“Edit(編輯)”視窗。

The screenshot shows a table titled "Working Calendar". The columns are "Name", "Activate", and "Delete". There are four rows: "SYSTEMDAY", "SAMPLE1", "SAMPLE2", and "SAMPLE3". The "SAMPLE1" row is highlighted with a red box and has a cursor icon pointing at it. The "Activate" column contains green checkmarks. The "Delete" column also contains green checkmarks.

The screenshot shows the same "Working Calendar" table. The "SAMPLE1" row is now highlighted with a red box, and a context menu is displayed over it. The menu items are "Edit", "Copy", and "Delete". The "Activate" and "Delete" columns still show green checkmarks.

Working Calendar - 刪除

- Admin UI -> Schedule(排程) -> Working Calendar(工作日曆)
 - 點擊該筆資料左方圖示、展開功能選項並點擊“Delete(刪除)”進行刪除。

The screenshot shows the Admin UI interface for managing working calendars. On the left, there is a table titled "Working Calendar" with columns for Name, Activate, and Delete. The table lists three entries: "SYSTEMDAY" (activated), "SAMPLE1" (selected and highlighted with a red border), and another entry (activated). A context menu is open for the "SAMPLE1" row, with options "Edit", "Copy", and "Delete". The "Delete" option is highlighted with a red border. At the bottom, a confirmation dialog box is displayed with the title "Confirm" and the message "開啟對話視窗確認是否進行刪除". The question inside the dialog is "Do you really want to delete the Calendar \"SAMPLE1\" ?". There are two buttons at the bottom of the dialog: "Cancel" and "OK".

Working Calendar - 複製

- Admin UI -> Resource(資源) -> Domain(領域)
 - 點擊該筆資料左方圖示、展開功能選項並點擊“Copy(複製)”進行複製。

The screenshot shows the 'Working Calendar' interface. On the left, a list of calendars is displayed, with 'SAMPLE1' selected. A context menu is open over 'SAMPLE1', with 'Copy' highlighted by a red box. The main area is a 'Working Calendar - Copy' dialog box. It contains fields for 'Name' (set to 'SAMPLE1') and 'Description'. Below these is a large 2020 calendar grid. Several dates are highlighted in orange, including January 8, February 14, April 22, and May 15. At the bottom of the dialog are buttons for 'By Pattern', 'Clear All', 'Reset', 'Cancel', and 'Save'. A yellow box highlights the text '可編輯視窗中的設定內容後再複製' (Edit settings in the dialog before copying) located above the 'Activate' checkbox.

Working Calendar

Search F

Name ▲

SYSTEMDAY

SAMPLE1

Edit

Copy

Delete

Working Calendar - Copy

Copy WCalendar SAMPLE1

*Name

Description

Activate

2020

January							February							March						
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
29	30	31	1	2	3	4	26	27	28	29	30	31	1	23	24	25	26	27	28	29
5	6	7	8	9	10	11	2	3	4	5	6	7	8	1	2	3	4	5	6	7
12	13	14	15	16	17	18	9	10	11	12	13	14	15	8	9	10	11	12	13	14
19	20	21	22	23	24	25	16	17	18	19	20	21	22	15	16	17	18	19	20	21
26	27	28	29	30	31	1	23	24	25	26	27	28	29	22	23	24	25	26	27	28
2	3	4	5	6	7	8	1	2	3	4	5	6	7	29	30	31	1	2	3	4

April							May							June						
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
29	30	31	1	2	3	4	26	27	28	29	30	1	2	31	1	2	3	4	5	6
5	6	7	8	9	10	11	3	4	5	6	7	8	9	7	8	9	10	11	12	13
12	13	14	15	16	17	18	10	11	12	13	14	15	16	14	15	16	17	18	19	20
19	20	21	22	23	24	25	17	18	19	20	21	22	23	21	22	23	24	25	26	27
26	27	28	29	30	1	2	24	25	26	27	28	29	30	28	29	30	1	2	3	4
3	4	5	6	7	8	9	31	1	2	3	4	5	6	5	6	7	8	9	10	11

By Pattern

Clear All

Reset

Cancel

Save

Lab 6

建立排程

Lab 6 : 建立 Working Calendar

- Admin UI -> Schedule(排程) -> Working Calendar(工作日曆)
 - 點擊畫面右上方新增物件的圖示可開啟對話視窗進行設定。
 - 設定完畢，按下“Save(儲存)”確認存檔。

The screenshot shows the Trinity Admin UI interface. On the left, there is a sidebar with various menu items under categories like Account, User, Role, User Group, Resource, Schedule, and Working Calendar. The Working Calendar item is currently selected and highlighted with an orange border. In the main content area, there is a "Working Calendar" section with a search bar and a button labeled "新增" (Add). A modal window titled "Working Calendar - Add Working Calendar" is open. Inside the modal, the "Name" field is populated with "TRAINEE15_WK". There is also a checked checkbox labeled "Activate". A large yellow callout box highlights the "Name: TRAINEE[N]_WK" and "Activate: 勾選" (Selected) text. Below the modal, there is a calendar grid for January, April, May, and June. A red box highlights the date "14" in the January grid. A yellow callout box with a hand cursor icon points to the date "14" and contains the text "以滑鼠左鍵任選日期" (Select date with mouse left click). At the bottom of the modal, there are buttons for "By Pattern", "Clear All", "Reset", "Cancel", and "Save".

Name: TRAINEE[N]_WK
Activate: 勾選

以滑鼠左鍵任選日期

Lab 6 : 建立 Frequency

- Admin UI -> Schedule(排程) -> Frequency(頻率)
 - 點擊畫面右上方新增物件的圖示可開啟對話視窗進行設定。

The screenshot shows the Trinity5 Admin UI interface. The left sidebar has a dark blue background with white icons and text for various modules: Account, User, Role, User Group, Resource (with sub-options: Alias Reference, Domain, Connection, File Source, JCS Agent, Virtual Agent), Schedule, Working Calendar, Frequency (which is selected and highlighted in orange), and Exclude Frequency. The main content area has a light gray background. At the top right, there are user information (trainee15) and language selection (English). Below that is a toolbar with icons for Home, Refresh, and Help. A search bar labeled "Frequency" is followed by a dropdown menu set to "Category : /". A search input field "Search For Name" with a magnifying glass icon is next to it. On the far right, there is a red-bordered button with a plus sign and the text "新增 Frequency" (Add Frequency) over a yellow background, with "update time" written below it. The main table area has columns for "Name" (sorted by ascending order), "Activate", and "Description". It displays the message "No data".

Lab 6 : 建立 Frequency

- 設定完畢，按下“Save(儲存)”確認存檔。

Frequency - Add Frequency

*Name	TRAINEE15_FREQ	Name: TRAINEE[N]_FREQ Activate: 勾選 Date Type: 選擇“Working Calendar” Working Calendar: 選擇“TRAINEE[N]_WK”
Description		
Date Type	Working Calendar	<input checked="" type="checkbox"/> Activate
*Working Calendar	TRAINEE15_WK	<input type="button" value="View"/>
Time Type	<input checked="" type="radio"/> Every Hour <input type="radio"/> Selected Time	<input checked="" type="checkbox"/> 0 <input type="checkbox"/> 5 <input type="checkbox"/> 10 <input type="checkbox"/> 15 <input checked="" type="checkbox"/> 20 <input type="checkbox"/> 25 <input type="checkbox"/> 30 <input type="checkbox"/> 35 <input checked="" type="checkbox"/> 40 <input type="checkbox"/> 45 <input type="checkbox"/> 50 <input type="checkbox"/> 55
Time Type: 選擇“Every Hour”並勾選 0、20、40		
<input type="button" value="Reset"/> <input type="button" value="Cancel"/> <input type="button" value="Save"/>		

例外排程設定

Exclude Frequency

- **Exclude Frequency(例外任務排程)**

- 當 Job 或 Job Flow 已透過設定Frequency 來指定執行排程，但因突發狀況要暫停執行某段時間的作業，在不想修改原有排程的狀況下，我們可以設定 Exclude Frequency，讓相關的作業在指定的期間中不要產生排程。
- 建立 Exclude Frequency 後，再設定欲套用的目標，目標可以為 Frequency、Job 及 Job Flow。
- 只有已套用 Frequency 的目標可以達到不產生排程的效果。

Exclude Frequency - 新增

- Admin UI -> Schedule(排程) -> Exclude Frequency(例外頻率)
 - 點擊畫面右上方新增物件的圖示可開啟對話視窗。

The screenshot shows the Trinity5 Admin UI interface. On the left, there is a sidebar with various navigation options: Resource, Alias Reference, Domain, Connection, File Source, JCS Agent, Virtual Agent, Schedule, Working Calendar, Frequency, Exclude Frequency (which is highlighted with a blue background), and System. The main area is titled 'Exclude Frequency' and contains a search bar and a table with columns: Name, Activate, Description, and Update Time. A 'GLOBAL' entry is listed with a delete icon. A large modal window titled 'Exclude Frequency - Add Exclude Frequency' is open in the foreground. It has fields for 'Name' (SAMPLE1) and 'Activate' (checked). Below that is a 'Description' field which is empty. A table for scheduling entries shows two rows: Seq 1 with Start Time 2023-12-05 14:59 and End Time 2023-12-05 14:59, and Seq 2 with Start Time 2023-12-06 14:56 and End Time 2023-12-06 15:00. There are 'Add' and 'Delete' buttons for each row. At the bottom of the modal are 'Reset', 'Cancel', and 'Save' buttons. The top right of the modal shows the user 'trainee15', language 'English', and a refresh icon.

Exclude Frequency - 編輯

- Admin UI -> Schedule(排程) -> Exclude Frequency(例外頻率)
 - 點擊該筆資料當中標示底線的值，或點擊該筆資料左方圖示、展開功能選項並點擊“Edit(編輯)”，可開啟該筆資料的“Edit(編輯)”視窗。

Exclude Frequency		Search For Name
Name	Activate	
GLOBAL	×	
SAMPLE1	✓	
SAMPLE2	✓	
SAMPLE3	✓	

Exclude Frequency		Search For Name
Name	Activate	
GLOBAL	×	
SAMPLE1	✓	

Exclude Frequency - 套用

- Admin UI -> Schedule(排程) -> Exclude Frequency(例外頻率)
 - 點擊該筆資料左方圖示、展開功能選項並點擊“Apply(套用)”進行套用。

The screenshot illustrates the 'Exclude Frequency' feature in the Trinity application. On the left, a sidebar shows a tree structure under 'GLOBAL' with 'SAMPLE1' selected. A context menu for 'SAMPLE1' includes 'Edit', 'Apply', and 'Delete', with 'Apply' highlighted by a red box. The main area displays the 'Exclude Frequency - Apply' dialog. It shows a table with one row: Business Entity 'TRAINEE15_ANGELINA', Category 'LAB1', and Job 'JOB1'. Below this is an 'Add' button. A yellow callout box at the top right states: '套用的目標可為 Frequency、Job、Flow 及 JobDAG'. A large red circle labeled '1' points to the 'Add' button. A red arrow labeled '2' points from the 'Add' button down to the 'Exclude Frequency - Apply - Add' sub-dialog. A red circle labeled '3' points to the 'JOB1' entry in the main table. The sub-dialog shows a hierarchical tree of jobs under 'LAB1': 'JOB1', 'JOB2', and 'JOB3'. The 'JOB1' node under 'LAB1' is checked.

Exclude Frequency

Search For Name

Exclude Frequency - Apply

Name: SAMPLE1

Apply Frequency Apply Job Apply Flow Apply JobDAG

Search For Job

Business Entity	Category	Job
TRAINEE15_ANGELINA	LAB1	JOB1

Add

Delete

1

2

3

Exclude Frequency - Apply - Add

- DEFAULT
- TRAINEE15
- LAB1
 - JOB1
 - JOB2
 - JOB3
- LAB2
 - JOB1
 - JOB2
 - JOB3

Reset Cancel Save

套用的目標可為 Frequency、
Job、Flow 及 JobDAG

Trinity

Exclude Frequency - 套用

- Global Exclude Frequency(全域性例外任務排程)
 - Global Exclude Frequency 設定完畢後，不須套用即可直接生效。
 - 預設只有 Root 及 Administrator 角色的使用者才可以設定此功能

The screenshot shows a user interface titled "Exclude Frequency". At the top right is a search bar labeled "Search For Name" and a magnifying glass icon. Below the title is a table with columns: "Name", "Activate", and "Description". The "Name" column contains entries: "GLOBAL", "SAMPLE1", "SAMPLE2", and "SAMPLE3". The "Activate" column for all entries has a green checkmark. A yellow callout box highlights the "GLOBAL" entry, with the text "Global 無 Apply(套用) 的功能" (Global does not have the Apply (套用) function). The "Edit" button for the "GLOBAL" row is highlighted with a red box. At the bottom left is a "Page Size" dropdown set to "10". Navigation arrows and a page number "1" are at the bottom center.

Name	Activate	Description
GLOBAL	✓	Global 無 Apply(套用) 的功能
SAMPLE1	✓	
SAMPLE2	✓	
SAMPLE3	✓	

Exclude Frequency - 刪除

- Admin UI -> Schedule(排程) -> Exclude Frequency(例外頻率)
 - 點擊該筆資料左方圖示、展開功能選項並點擊“Delete(刪除)”進行刪除。

The screenshot shows the 'Exclude Frequency' section of the Admin UI. On the left, there's a table with columns 'Name' and 'Activate'. The first row is 'GLOBAL' with an 'Activate' status of 'x'. The second row is 'SAMPLE1' with an 'Activate' status of a green checkmark. A context menu is open for 'SAMPLE1', with options 'Edit', 'Apply', and 'Delete'. The 'Delete' option is highlighted with a red box. In the bottom right corner, a 'Confirm' dialog box is displayed with the text '開啟對話視窗確認是否進行刪除' (Open dialog window to confirm whether to perform deletion) and a question 'Do you really want to delete the exclude frequency "SAMPLE1"?' Below the dialog are 'Cancel' and 'OK' buttons.

Name	Activate
GLOBAL	x
SAMPLE1	✓
	✓
	✓

Confirm

開啟對話視窗確認是否進行刪除

Do you really want to delete the exclude frequency "SAMPLE1"?

Cancel OK

Job Execution Time

Job Execution Time

- 在作業層級上，可設定單一作業的專用排程，提供較為彈性的設置。
 - 設定位置在 Job 編輯頁面當中的“Execution Time”頁籤。
 - 此方式與 Frequency 須擇一使用。

The screenshot shows the 'Job' configuration page. At the top, there are fields for BusEntity (TRAINEE15_ANGELINA), Category (LAB1), Name (JOB1), Job Type (ETL Job), and a checked 'Activate' checkbox. Below these are fields for Description and a large empty text area.

The navigation bar at the top has tabs: General (selected), Execution Time (highlighted with a red box), Forecast, Note, Variable, Step, Stream/Trigger, Dependency, Source/Target, and Notification.

The 'Execution Time' tab is active. It contains fields for Domain (Default), Agent (LOCAL_AGENT), Frequency (Select), File Source (Select), and a '...' button. A yellow callout box with the text '須擇一使用' (Must be selected) points to the Frequency field.

At the bottom, there are 'Retry Option' settings: 'Retry After Job Failed' (unchecked), 'From Beginning' (radio button selected), 'From Breakpoint', and 'Only File Receive'.

Job 的 Execution Time 頁面介紹

- 執行日期以 Working Calendar 指定。

Working Calendar 需事先定義

Working Calendar 需事先定義

General Execution Time Forecast Note Variable Step Stream Trigger Depender

Working Calendar SYSTEMDAY View

Description

Apply Date Mode Non-Selected Selected

Date Rule All Day

All Day
勾選代表全部日期套用
未勾選可設定部分日期套用

Holiday Calendar Select View Skip Forward Backward

Job 的 Execution Time 頁面介紹

- 執行時間有三種模式。

The screenshot displays three separate configurations for 'Execution Time':

- One Time Job:** The 'Apply Time Mode' dropdown is set to 'One Time Job'. The 'Selected Time' table shows one task entry with time '0 : 0'. A yellow callout box labeled '指定單一時間' (Specify Single Time) points to this section.
- Multiple Time Job:** The 'Apply Time Mode' dropdown is set to 'Multiple Time Job'. The 'Selected Time' table shows three task entries with times '1 : 0', '2 : 0', and '3 : 0'. The third entry is highlighted with a blue selection bar. A yellow callout box labeled '指定多個時間' (Specify Multiple Times) points to this section.
- Continuous Job:** The 'Apply Time Mode' dropdown is set to 'Continuous Job'. The 'Selected Time' table shows a single task entry with Start Time '1 : 0', End Time '8 : 0', and Interval '1'. A yellow callout box labeled '指定多個區間' (Specify Multiple Intervals) points to this section.

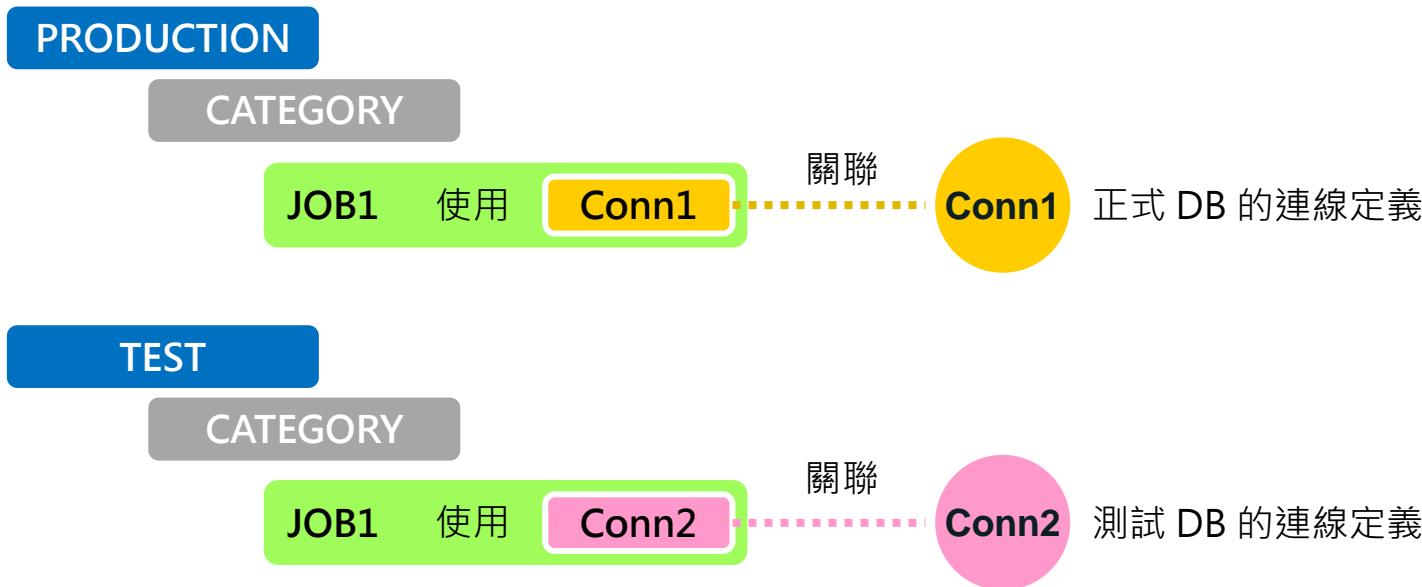
Job Execution Time 4.1版介紹

- Job Execution Time 4.1版介紹請參閱本講義“附錄2”說明。

Alias 別名

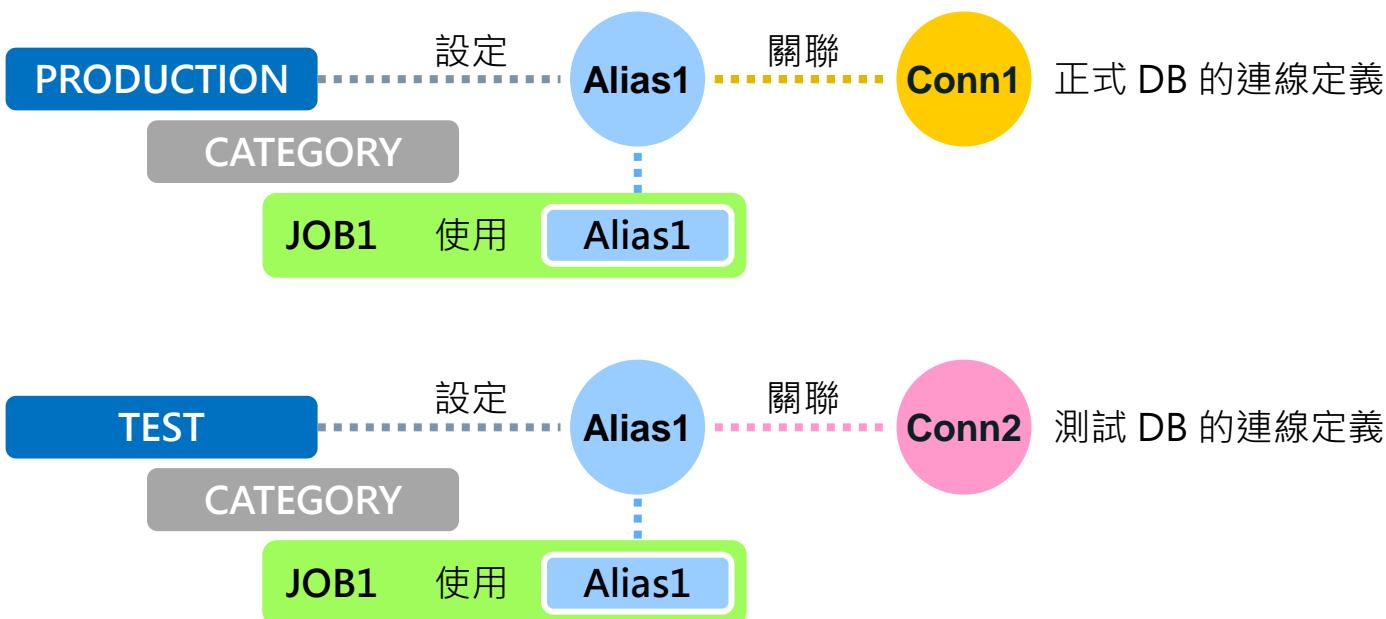
Alias

- 若無設定別名，如下圖：



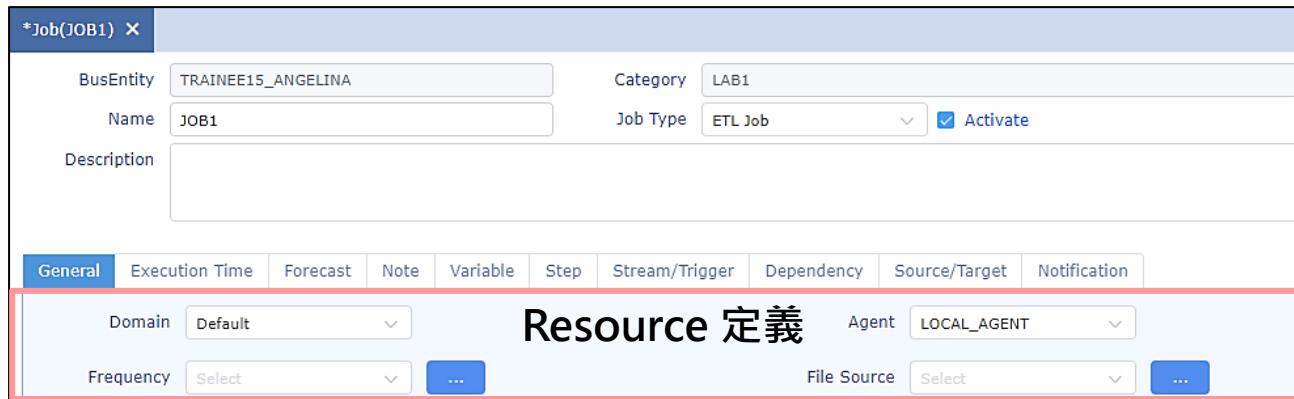
Alias

- Alias 別名
 - 用以設定各 Business Entity 中資源的別名。
 - 需先存在 Business Entity 及資源項目，才可設定 Business Entity 的別名並對應到指定的資源項目。
- 若有設定別名，如下圖：

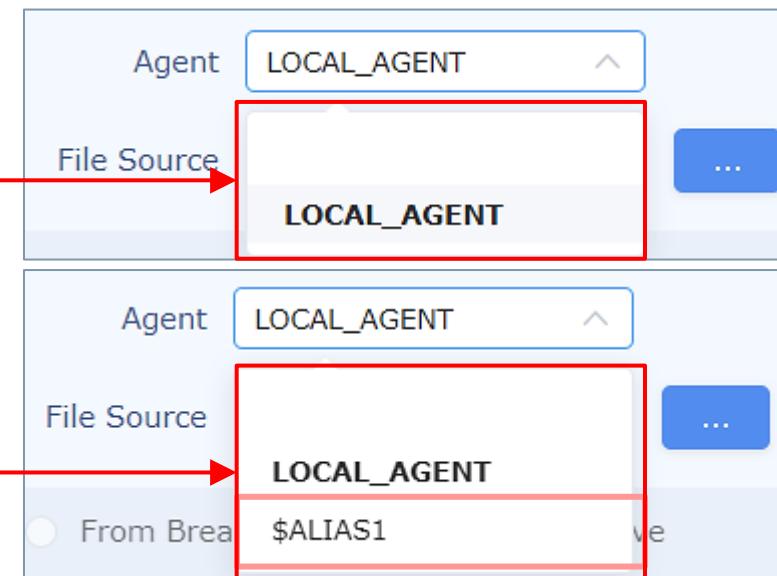


Alias

- Alias 建立完畢並適當授權後，該 Business Entity 下的 Job 於設計過程當中即可使用 Alias 來取代實際資源。



若未建立 Alias，則資源選項內容僅顯示實際資源。



若有建立 Alias，則資源選項內容會顯示實際資源及 Alias 項目。

Alias 功能首頁

- 需先存在 Business Entity，才可進一步編輯

The screenshot shows the Trinity5 application interface. On the left is a dark sidebar with various navigation options: Account, User, Role, User Group, Resource, Alias Reference (which is highlighted with a blue bar), Domain, Connection, File Source, JCS Agent, and Virtual Agent. The main content area has a light gray header with icons for Home, Document, and Help, followed by the user name 'trainee15' and language 'English'. Below the header is a search bar labeled 'Alias Reference' with a placeholder 'Search For Name' and a magnifying glass icon. The main table displays three entries:

Business Entity	Description
GLOBAL	
DEFAULT	Default Business Entity
TRAINEE15_ANGELINA	

Alias - 編輯

- Admin UI -> Resource(資源) -> Alias Reference(參考別名)
 - 點擊 Business Entity Name，或點擊該筆資料左方圖示、展開功能選項並點擊“Edit(編輯)”，可開啟該筆資料的“Edit(編輯)”視窗。

This screenshot shows the 'Alias Reference' list page. At the top left is the title 'Alias Reference'. To its right is a search bar labeled 'Search For Name'. Below the title, there's a section header 'Business Entity ▲'. Underneath are three entries: 'GLOBAL', 'DEFAULT', and 'TRAINEE15'. The 'TRAINEE15' entry is highlighted with a red rectangle and has a mouse cursor pointing at it. At the bottom left is a 'Page Size' dropdown set to '10', and at the bottom right is a back arrow.

This screenshot shows the same 'Alias Reference' list page as the previous one, but with a different focus. The 'TRAINEE15' entry is now highlighted with a red rectangle, and a context menu is displayed over it. The menu items are 'Edit' and 'Permission', both enclosed in a red rectangle. The rest of the page, including the header, other entries, and navigation controls, appears identical to the first screenshot.

Alias - 編輯

- 點擊右上方「Add(新增)」可加入定義
- 「Alias Name(參考別名)」欄位輸入完畢、游標移開後，系統自動補上“\$”符號字首。
- “Type(種類)”選定後，影響“Target(目標)”帶出該種類的資源選項(僅顯示該使用者具備使用權限的項目)。
- 若為已存在的定義，則“Alias Name(參考別名)”、“Type(種類)”欄位不可修改。
- 設定完畢，按下“Save(儲存)”確認存檔。

Alias Reference - Edit

Name: TRAINEE15

Alias Name	Type	Target	Description	Add
\$CONN1	Connection	LOCAL_FTP		
\$DOMAIN1	Domain	TRAINEE15		
\$FREQ1	Frequency	TRAINEE15_FREQ		
\$FS1	File Source	TRAINEE15_FS1		
	Connection			

Buttons: Reset, Cancel, Save

Alias - 權限

- 點擊該筆資料左方圖示、展開功能選項並點擊“Permission(權限)”進行管理。
- 預設呈現既有的權限設定內容。
- 設定內容分為「Account(帳號)」頁面與「Role(角色)」頁面，可分別設定。
- 可針對既有的設定內容直接勾選或取消勾選來進行修改。
- 按下「Delete(刪除)」可刪除畫面上該筆資料。

The screenshot illustrates the process of managing permissions for an alias reference. It shows three main windows:

- Main Window (Alias Reference):** Shows a list of alias references. A specific entry for "TRAINEE15" is selected, indicated by a red box and the number 1.
- Sub-Window (Alias Reference - Permission):** Displays the permission settings for the selected alias reference. It includes fields for Name (TRAINEE15), Search User, and a table showing Alias Reference, Type, Target, and Description. A row for "\$CONN1" is shown with a "Connection" type and "LOCAL_FTP" target. To the right, there are "Edit" buttons for each row, with the first one highlighted by a red box and the number 2.
- Modal Window (Alias Reference - Permission - Edit):** Provides detailed permission settings for the "\$CONN1" alias reference. It has tabs for Account and Role, currently showing the Account tab. It lists User Names (User ID) and their corresponding "Use" checkboxes. Three users are listed: "trainee3 (trainee3)", "trainee2 (trainee2)", and "trainee1 (trainee1)". To the right, there are "Add", "Delete", and "Edit" buttons for each user, with the "Add" button highlighted by a red box and the number 3.

Lab 7

建立 Alias

Lab 7：建立 Alias

- Admin UI -> Resource(資源) -> Alias Reference(參考別名)
 - 點擊 Business Entity Name，或點擊該筆資料左方圖示、展開功能選項並點擊“Edit(編輯)”，可開啟該筆資料的“Edit(編輯)”視窗。

The screenshot shows the Trinity5 Admin UI interface. On the left, a dark sidebar lists various resources: Account, User, Role, User Group, Resource, Alias Reference (which is selected and highlighted in orange), Domain, Connection, File Source, JCS Agent, and Virtual Agent. The main content area is titled "Alias Reference" and features a search bar labeled "Search For Name". Below the search bar is a table with two columns: "Business Entity" and "Description". The table contains three entries: "GLOBAL", "DEFAULT" (with a description "Default Business Entity"), and "TRAINEE15_ANGELINA", which is highlighted with a red rectangular box. The top right corner of the screen shows the user "trainee15", the language "English", and a refresh icon.

Business Entity	Description
GLOBAL	
DEFAULT	Default Business Entity
TRAINEE15_ANGELINA	

Lab 7：建立 Alias

- 新增一筆
- 設定完畢，按下”Save(儲存)” 確認存檔。

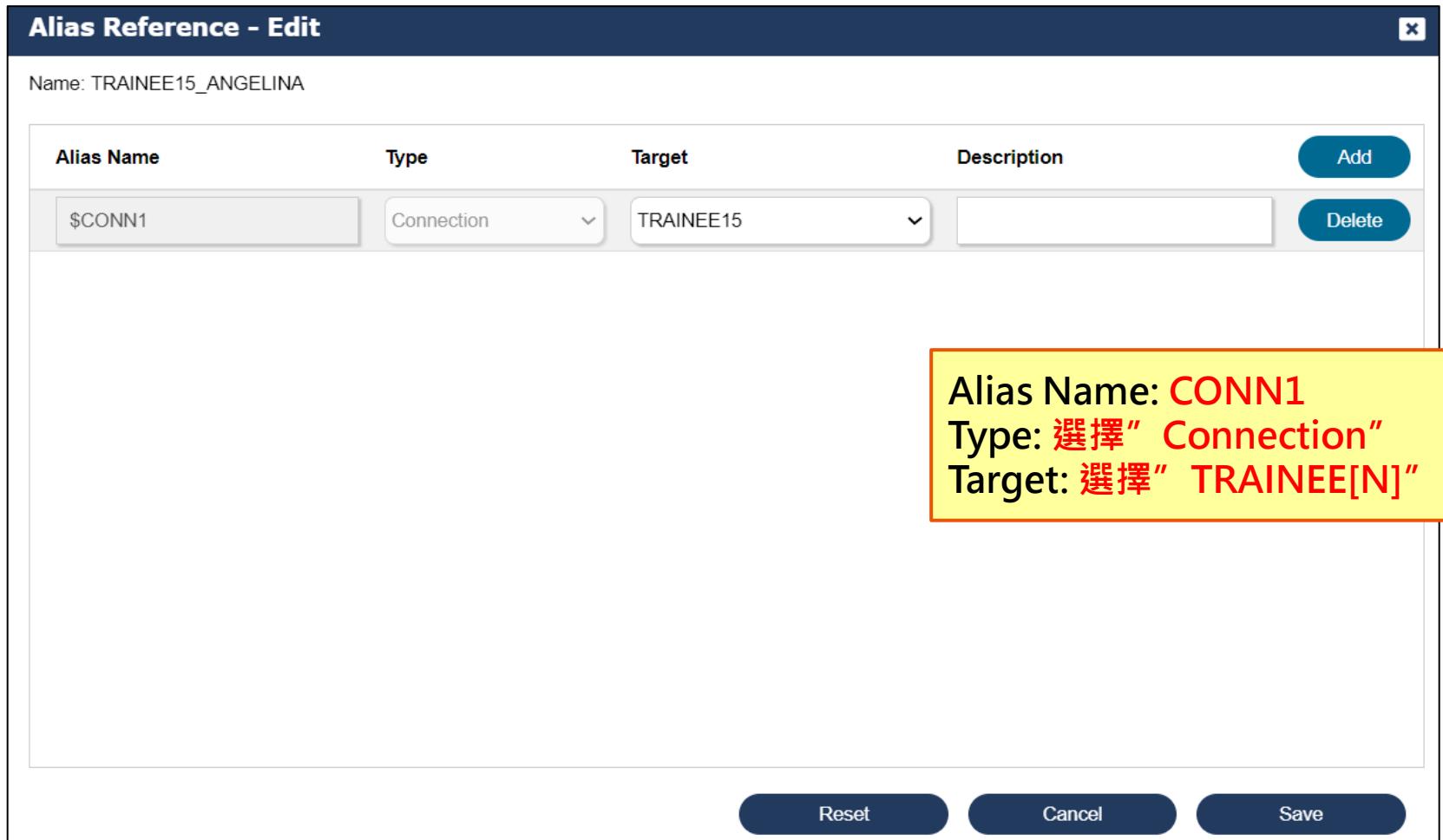
Alias Reference - Edit

Name: TRAINEE15_ANGELINA

Alias Name	Type	Target	Description	Add
\$CONN1	Connection	TRAINEE15		Delete

Alias Name: CONN1
Type: 選擇” Connection”
Target: 選擇” TRAINEE[N]”

Reset Cancel Save



Lab 7：建立 Alias

- 回到功能首頁，設定權限
 - 點擊該筆資料左方圖示、展開功能選項並點擊“Permission(權限)”，可開啟“Alias Reference-Permission(參考別名-權限)”畫面。

The screenshot shows the Trinity5 application interface. On the left, there is a navigation sidebar with the following items:

- Account
- User
- Role
- User Group
- Resource
- Alias Reference** (highlighted with a blue background)
- Domain
- Connection
- File Source
- JCS Agent
- Virtual Agent

The main content area displays the "Alias Reference" page. It includes a search bar, a table header with columns for "Business Entity" and "Description", and two entries: "GLOBAL" and "DEFAULT". Below these, a list item "TRAINEE15_ANGELINA" is expanded, showing options "Edit" and "Permission". The "Permission" option is highlighted with a red box.

A modal dialog box titled "Alias Reference - Permission" is open. It contains the following information:

- Name: TRAINEE15_ANGELINA
- Search For Name input field
- Table with columns: Alias Reference, Type, Target, and Description. One row is listed: \$CONN1, Connection, TRAINEE15.

Lab 7 : 建立 Alias

The image shows three overlapping windows illustrating the process of creating an alias:

- Alias Reference - Permission**: A modal window showing details for an alias named "TRAINEE15_ANGELINA". It includes a search bar and a table with columns: Alias Reference, Type, Target, and Description. The "Edit" button is highlighted with a red box and a red circle containing the number 1.
- Alias Reference - Permission - Edit**: A sub-modal window for editing the alias. It shows the name "\$CONN1" and has tabs for "Account" (highlighted with a red box and red circle 2) and "Role". It includes a "User Name(User ID)" input field, a "Use" section with an "Add" button (highlighted with a red box and red circle 2), and a "Save" button at the bottom right.
- Add User**: A window listing users. The "User List" header is shown, followed by a list of users: trainee1 (trainee1), trainee10 (trainee10), trainee11 (trainee11), trainee12 (trainee12), trainee13 (trainee13), trainee14 (trainee14), trainee15 (trainee15) (highlighted with a red box and red circle 3), trainee16 (trainee16), trainee17 (trainee17), and trainee18 (trainee18). The "Save" button at the bottom right is highlighted with a red box and red circle 4.

Alias Reference - Permission

Name: TRAINEE15_ANGELINA

Search For Name

Alias Reference	Type	Target	Description
\$CONN1	Connection	TRAINEE15	

Alias Reference - Permission - Edit

Name: \$CONN1

Account **Role**

User Name(User ID)

Use

Add

Add User

User List ▲

- trainee1 (trainee1)
- trainee10 (trainee10)
- trainee11 (trainee11)
- trainee12 (trainee12)
- trainee13 (trainee13)
- trainee14 (trainee14)
- trainee15 (trainee15)**
- trainee16 (trainee16)
- trainee17 (trainee17)
- trainee18 (trainee18)

Reset Cancel Save

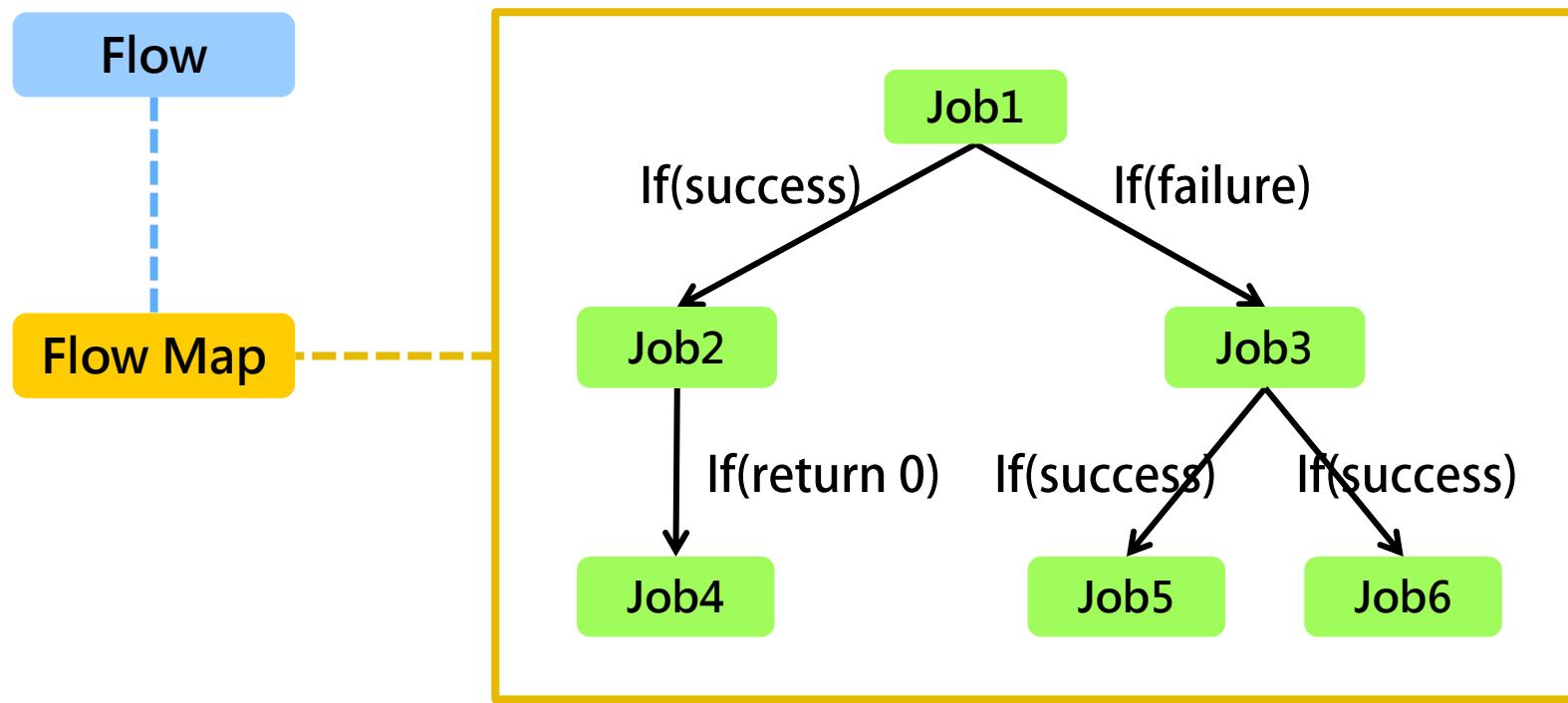
Trinity

Job Flow

Job Flow

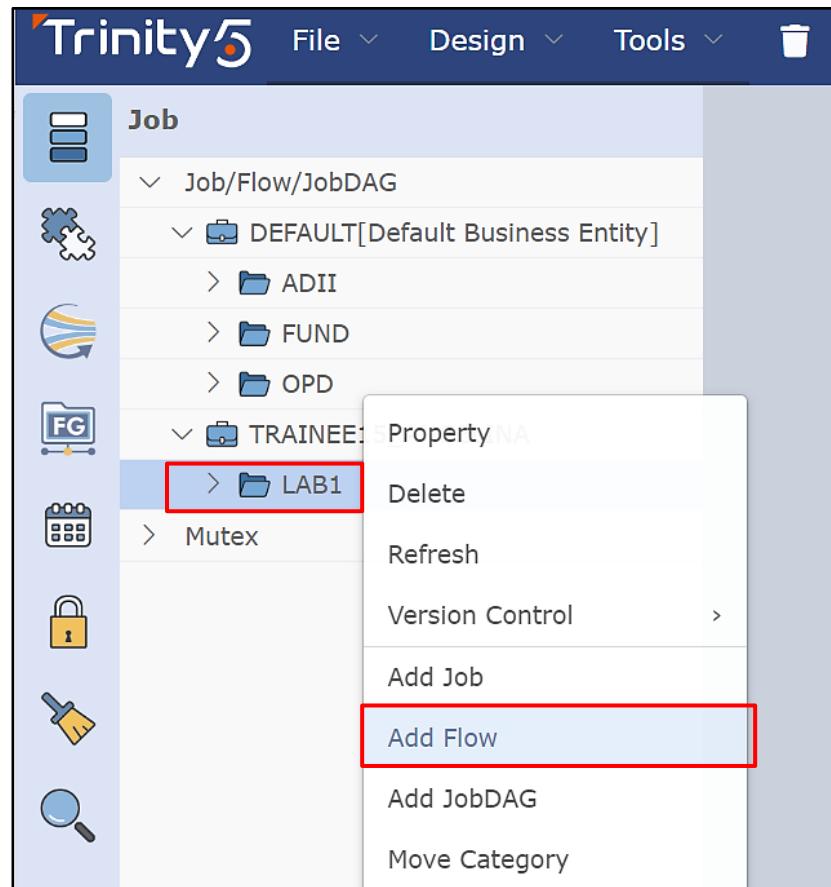
- Job Flow 作業流程

- 用以將多個 Job 串聯在一起，並可根據前一個 Job 的執行結果或回傳值，來決定下一個 Job 如何執行。
- Flow 需定義 Flow Map，Flow Map 由 Job 所構成。



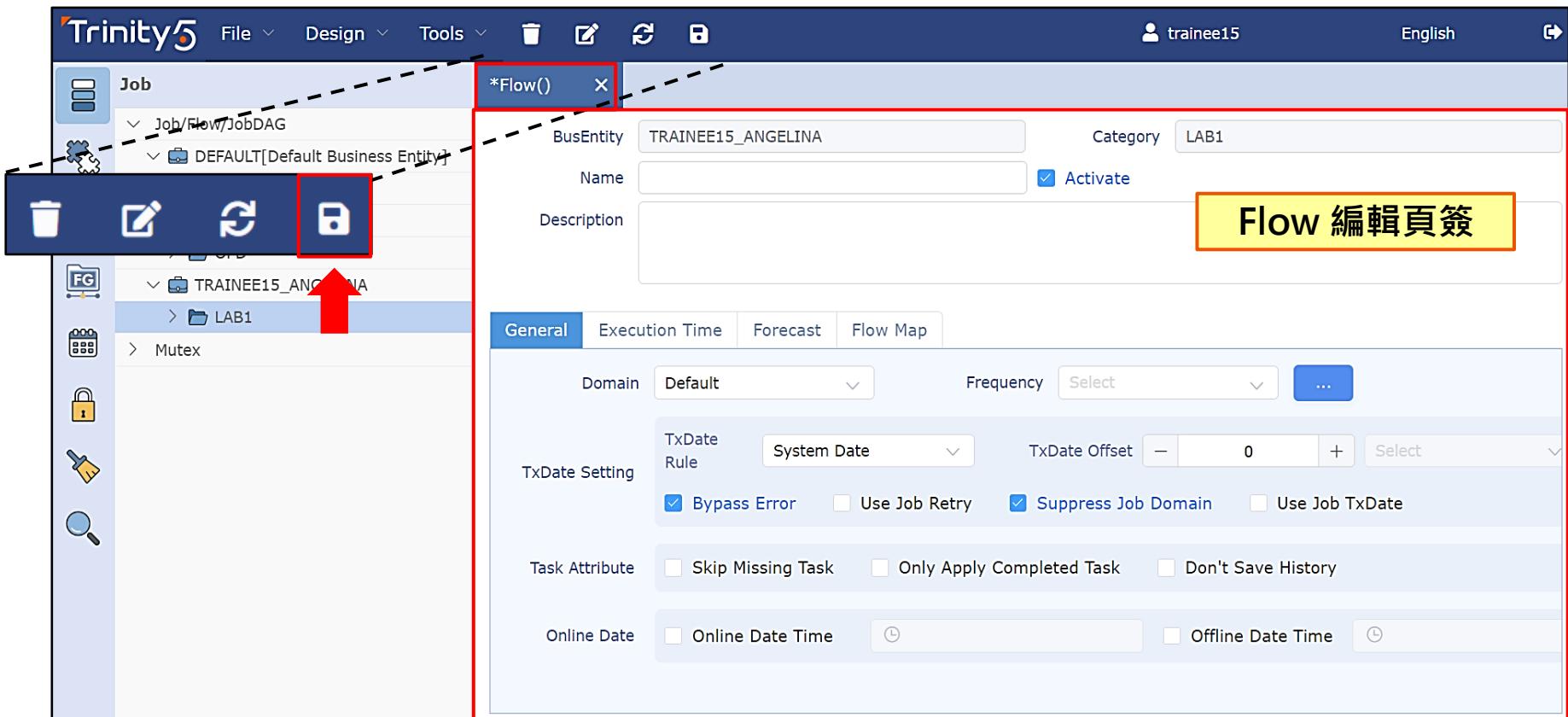
Job Flow - 新增

- 於Web JF Designer 新增 Job Flow
 - 於樹狀視圖區中先選擇目標 Category 後以滑鼠右鍵開啟選單並點選” Add Flow” 進行。



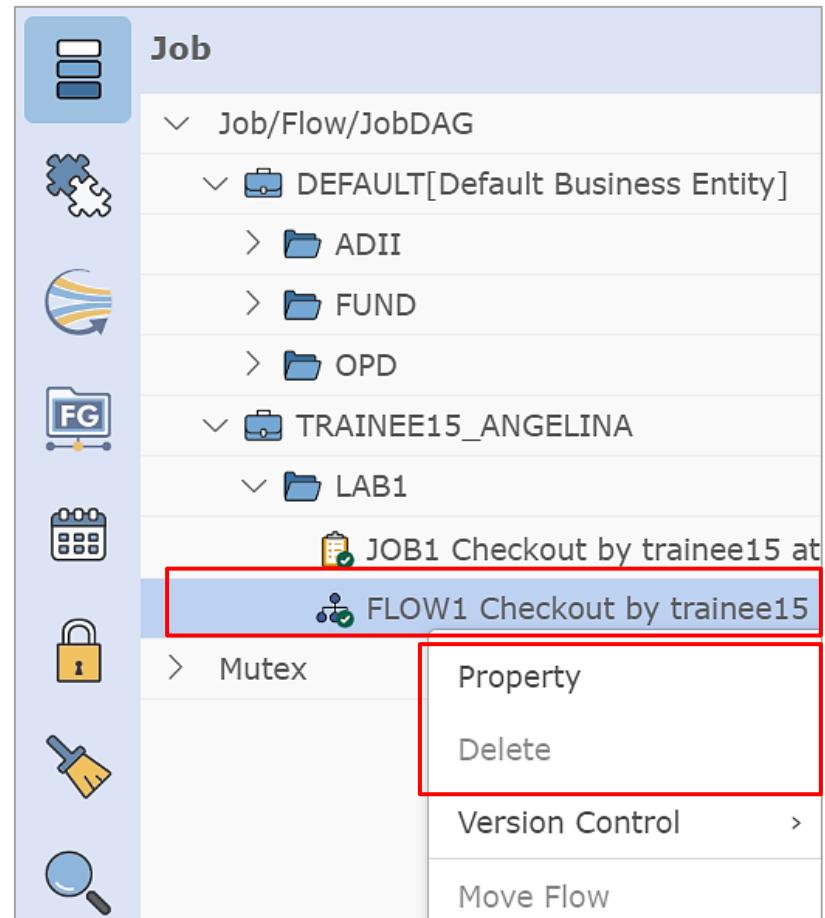
Job Flow - 新增

- 新增 Job Flow 時開啟編輯頁簽，編輯完畢後，須將設定更新到數據庫中，可點選工具列“Save”圖示或直接以建盤輸入 Ctrl+S 進行。



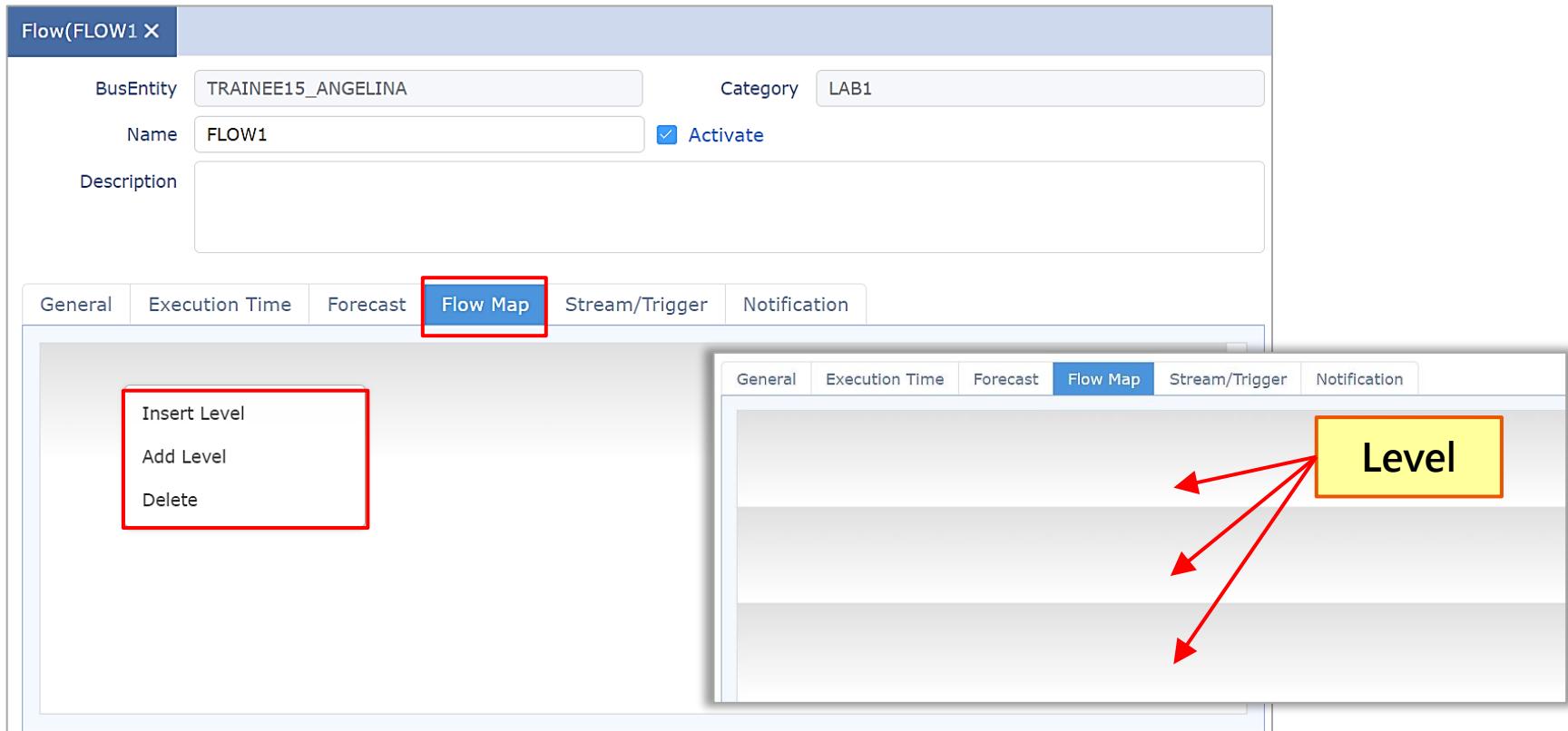
Job Flow - 編輯、刪除

- 於Web JF Designer 編輯、刪除 Job Flow
 - 於樹狀視圖區中先選擇目標 Job Flow 後以滑鼠右鍵開啟選單並點選” Property” 或” Delete” 進行。



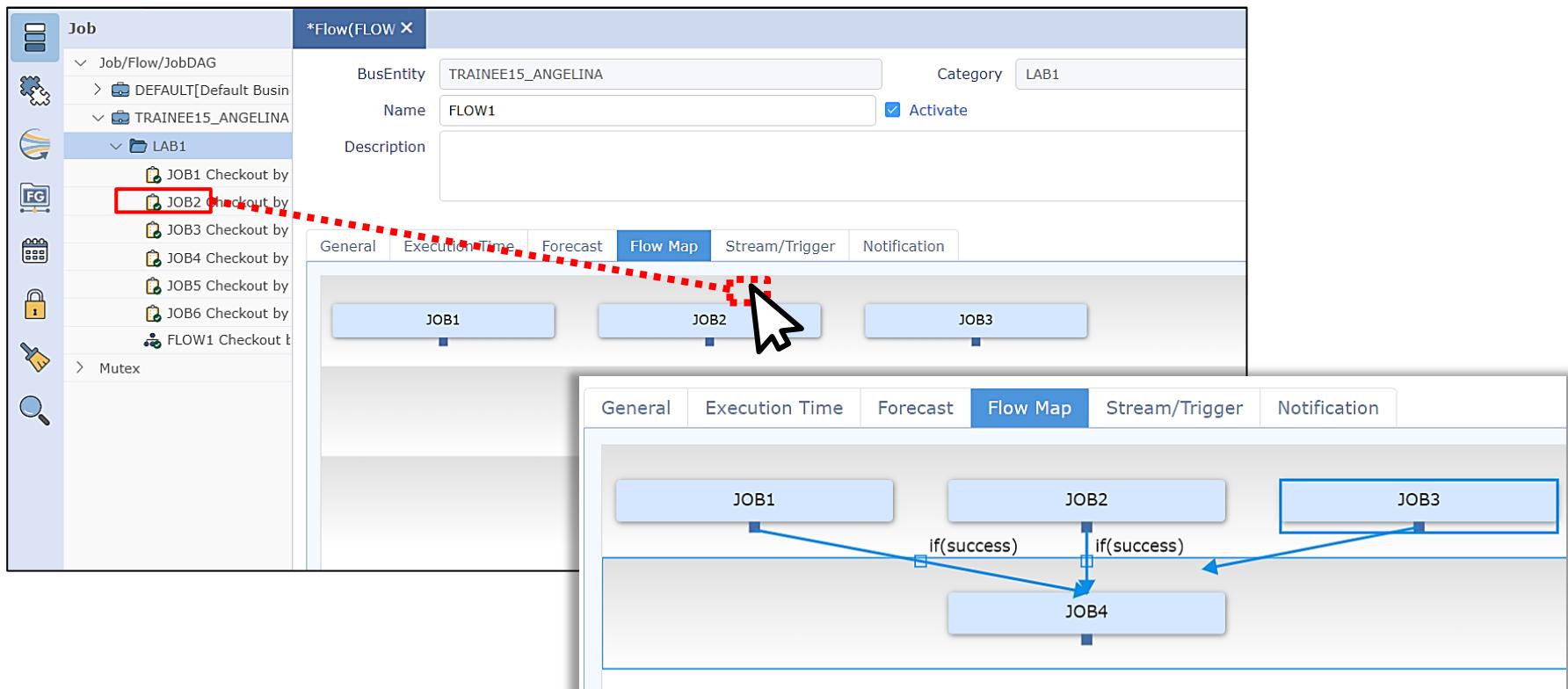
Job Flow - 編輯 Flow Map

- 於Web JF Designer 編輯 Flow Map
 - 於樹狀視圖區中選擇目標 Job Flow開啟編輯頁簽
 - 選取 “ Flow Map"頁面，於頁面當中以滑鼠右鍵開啟選單可增加 Level或刪除 Level。



Job Flow - 編輯 Flow Map

- 自樹狀視圖區中以滑鼠左鍵按住 Job 圖示拖曳至 Flow Map 頁面上的 Level 當中後放開滑鼠左鍵，即完成 Job 帶入 Map 的動作。
- 從 Job 圖示的藍點上按住滑鼠左鍵並移動游標，即可建立藍色的連接線跟著游標移動，持續移動游標直到另一個 Plug-in 圖示上方之後放開滑鼠左鍵，即可完成連結。



Job Flow - 編輯 Flow Map

- 滑鼠左鍵雙擊連線中間的方框，可開啟編輯流程執行條件的對話視窗。

if(success) : 當上方 Job 執行成功時
if(failure) : 當上方 Job 執行失敗時
if(timeout) : 當上方 Job 執行逾時時
if(completed) : 當上方 Job 執行完畢時
if(return ?) : 當上方 Job 執行後所回傳的值符合。
else : 當上方Job執行後沒有符合上述任一個Condition時

Flow Element Setting

Condition Type: if(success)

Condition Group: and

Flow Element Setting

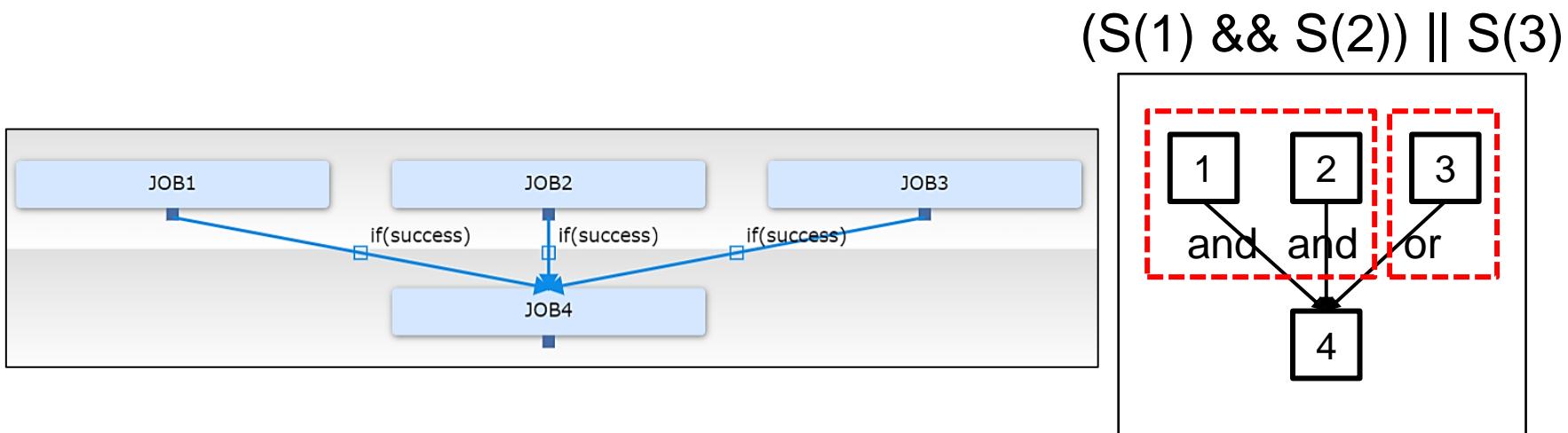
Condition Type: if(success)

Condition Group: if(success), if(failure), if(timeout), if(completed), if(return ?), else

設定 Job 與 Job 之間連線的邏輯關係

Job Flow - 編輯 Flow Map

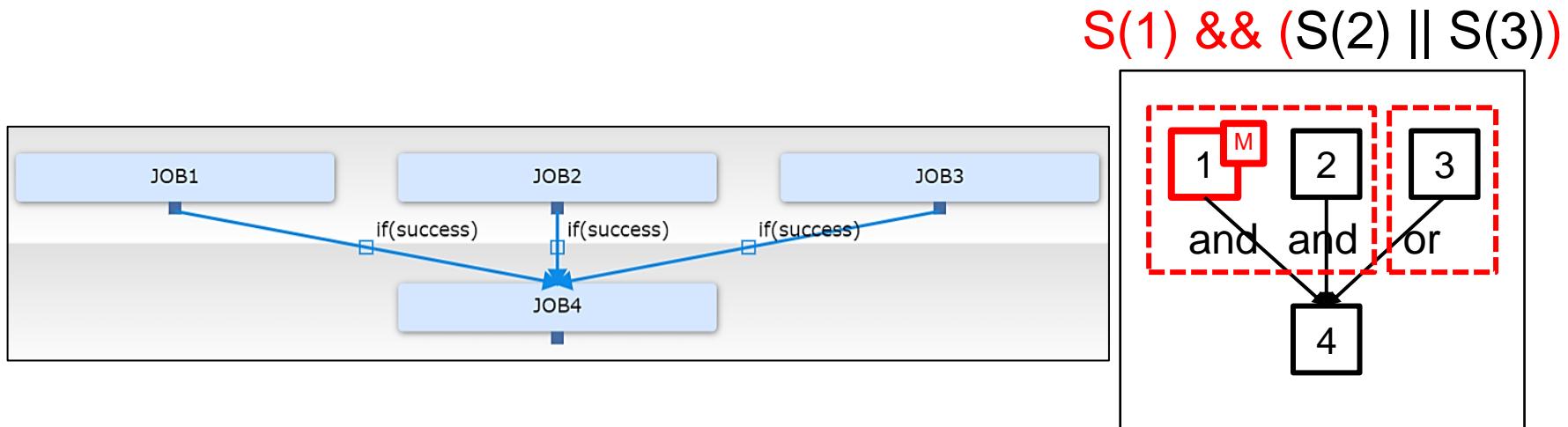
- Condition Group 情境說明
 - 假設目前有四個Job，分別為 Job1、Job2、Job3、Job4
 - Job1 -> Job4 (ConditionGroup=and),
 - Job2 -> Job4 (ConditionGroup=and),
 - Job3 -> Job4 (ConditionGroup=or)
 - 則當“Job3獨自執行成功時”，就可進行到 Job4



Job Flow - 編輯 Flow Map

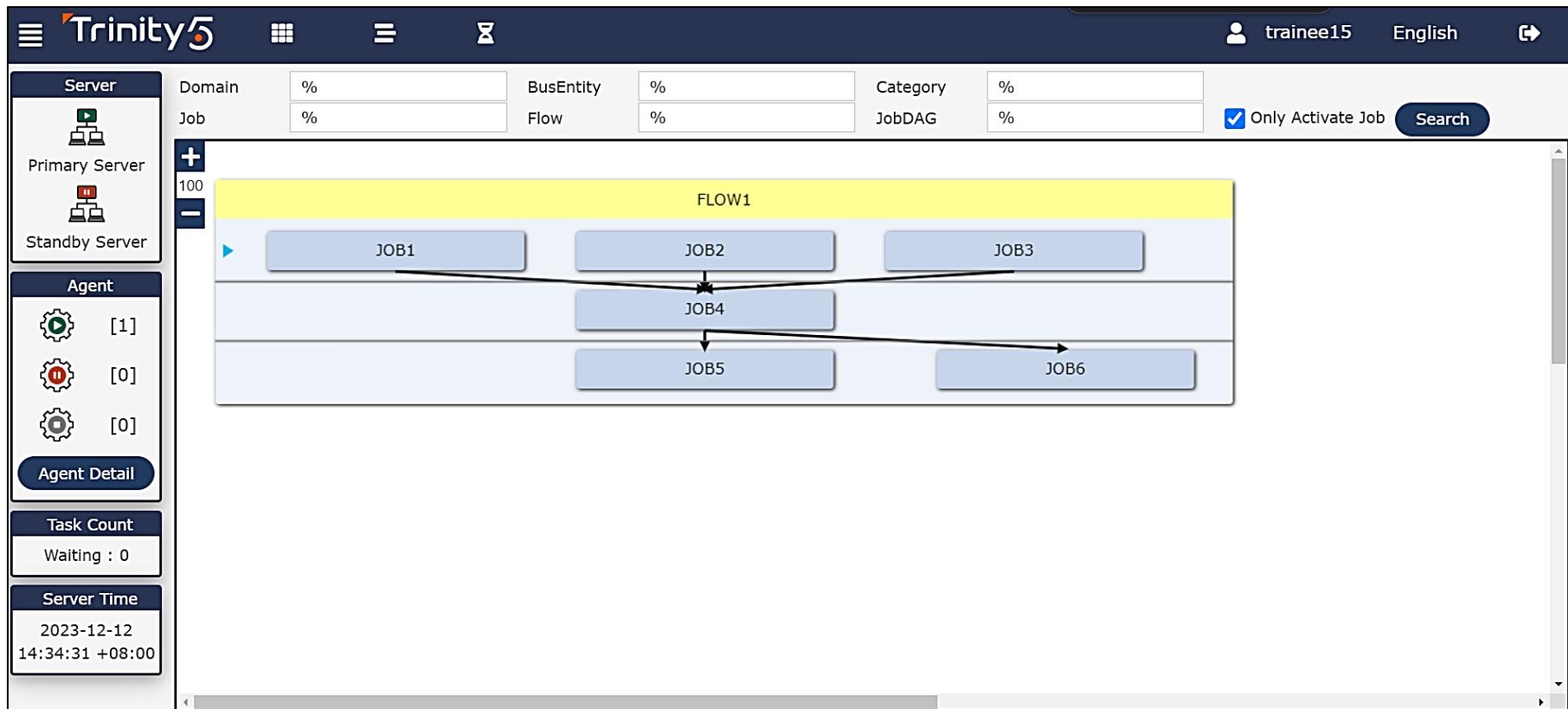
- Condition Group 情境說明

- 假設目前有四個Job，分別為 Job1、Job2、Job3、Job4
- Job1 -> Job4 (ConditionGroup=and + 勾選 Mandatory),
- Job2 -> Job4 (ConditionGroup=and),
- Job3 -> Job4 (ConditionGroup=or)
- 則 Job1 無論如何都必須是執行成功；如果 Job3 執行成功時 Job1 未成功，則即使 Job3 為 or 也不能進行到 Job4。



Job Flow -Web Task Console 呈現畫面

- 於Web Task Console 圖形化介面可呈現 Job Flow 關係。



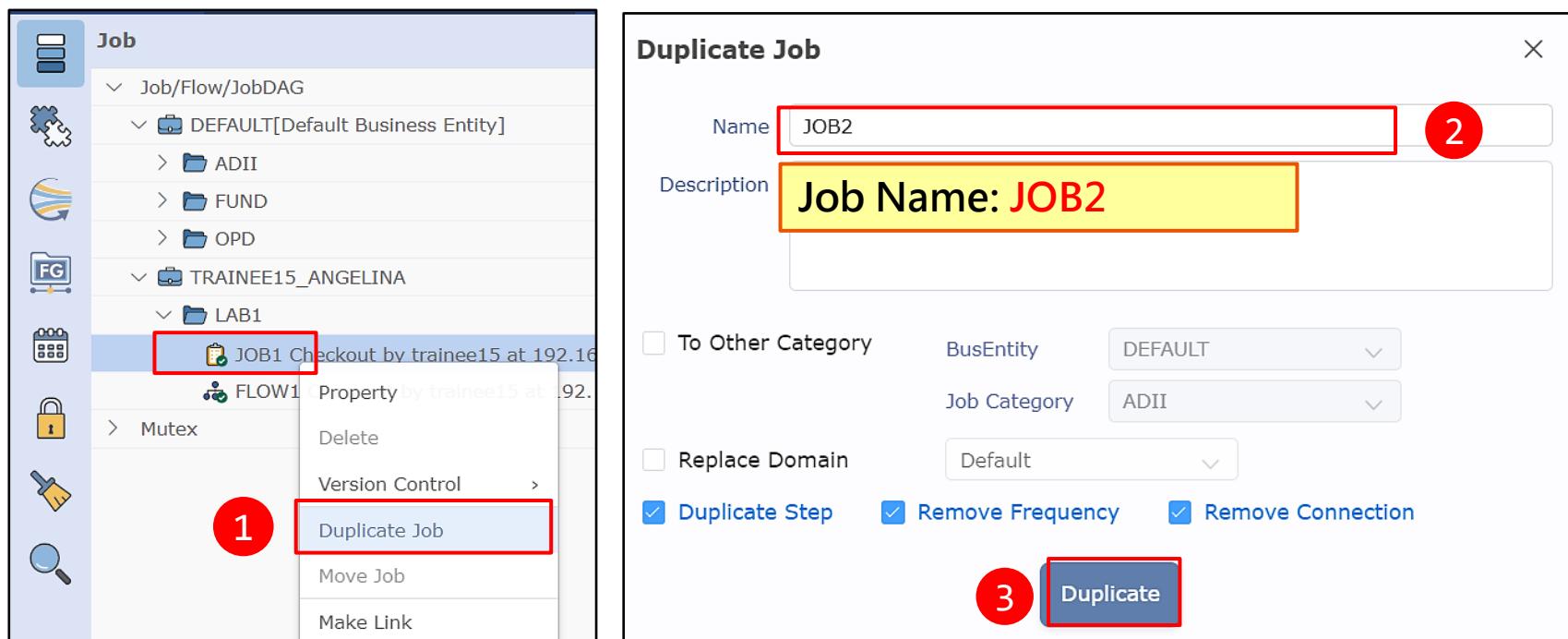
Lab 8

Job Flow

Lab 8：建立 Job

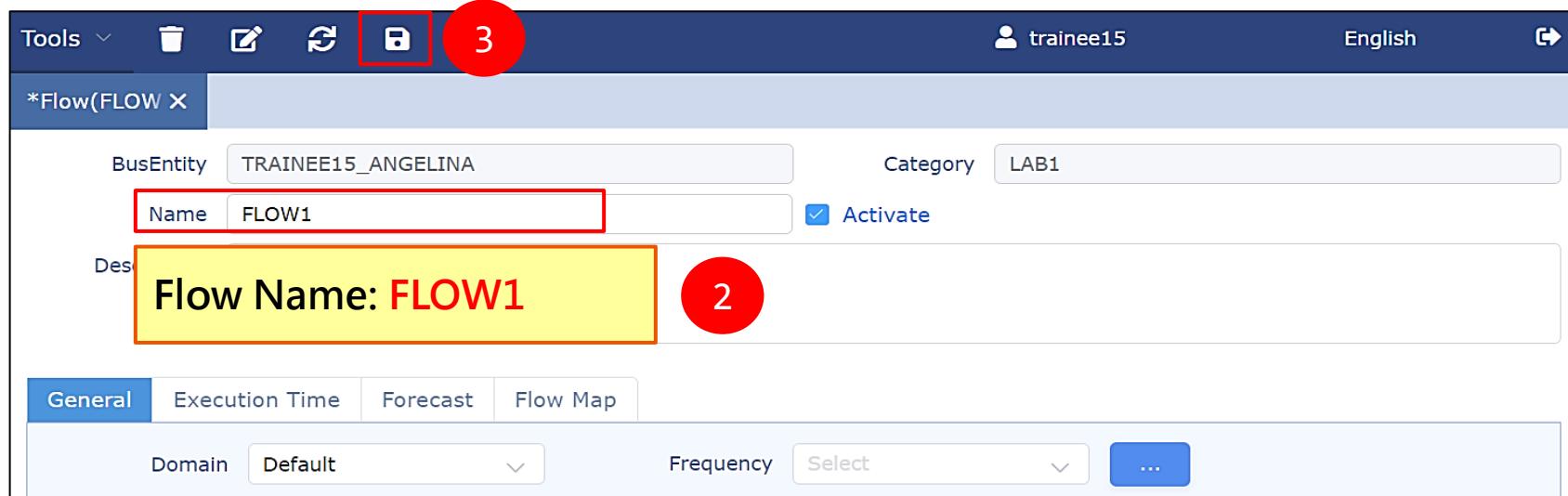
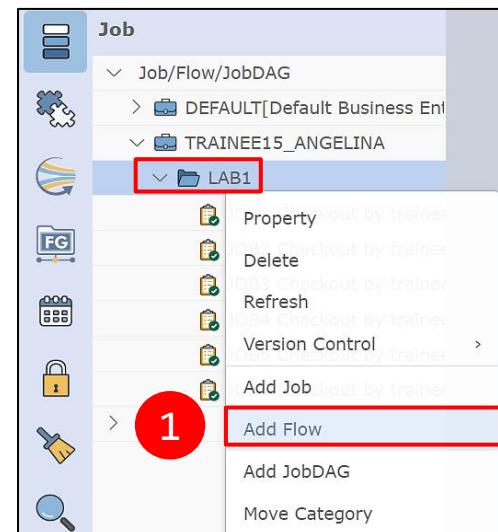
- 於Web JF Designer 以複製的方式快速佈署 Job：

- 選擇既有的 Job(JOB1)後以滑鼠右鍵開啟選單並點選“ Duplicate Job”，於對話視窗當中將 Job Name 改為“ JOB2”，再按下“ Duplicate” ，完成複製。
- 以相同步驟複製出其餘 Job，分別命名為“ JOB3”、“ JOB4”、“ JOB5”、“ JOB6”。



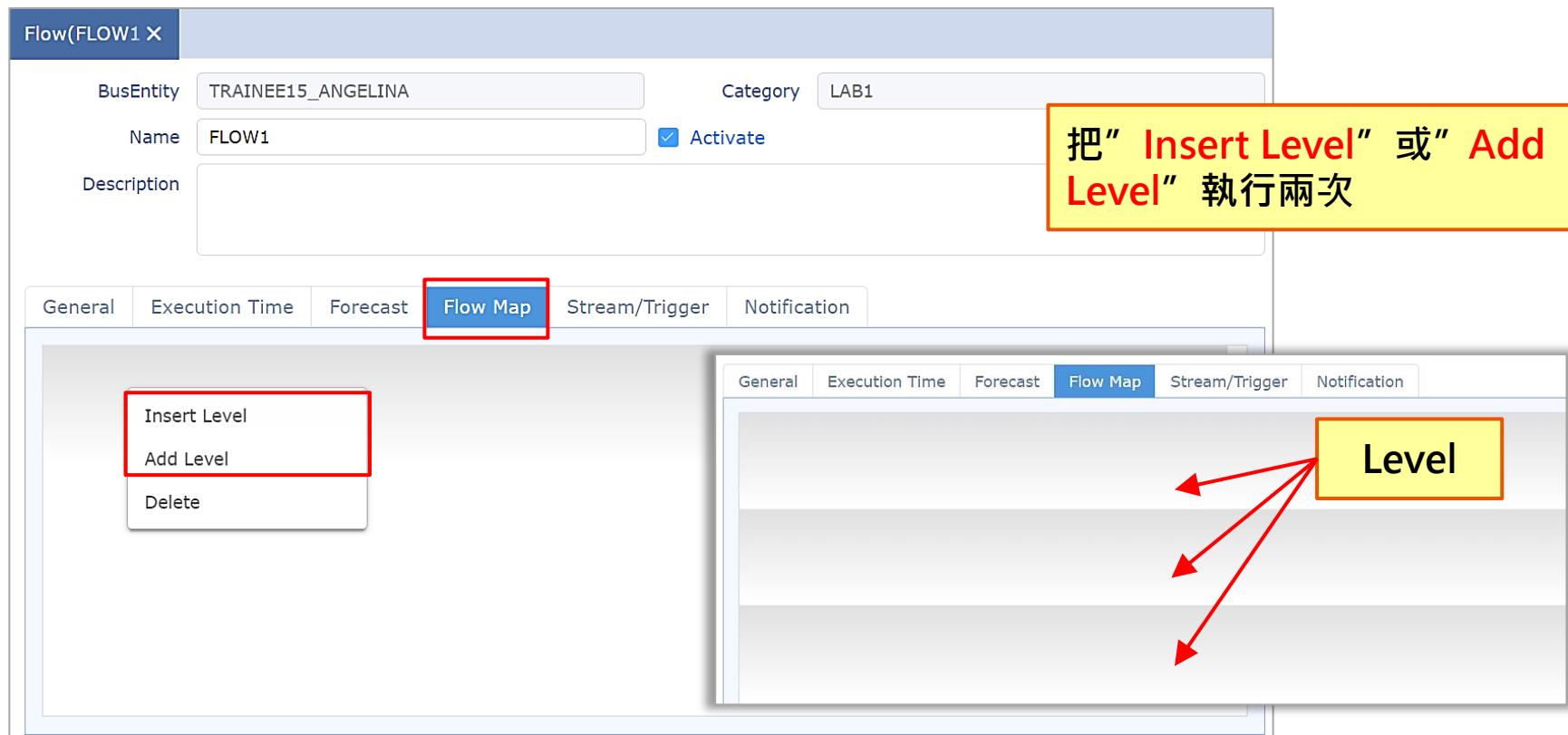
Lab 8：建立 Job Flow

- 於Web JF Designer 新增 Flow : FLOW1
 - 於樹狀視圖區中先選擇目標 Category(LAB1) 後以滑鼠右鍵開啟選單並點選” Add Flow” 進行。
- 完成後將設定更新到數據庫中：
 - 點選工具列” Save” 圖示，或直接以建盤輸入 Ctrl+S 進行。



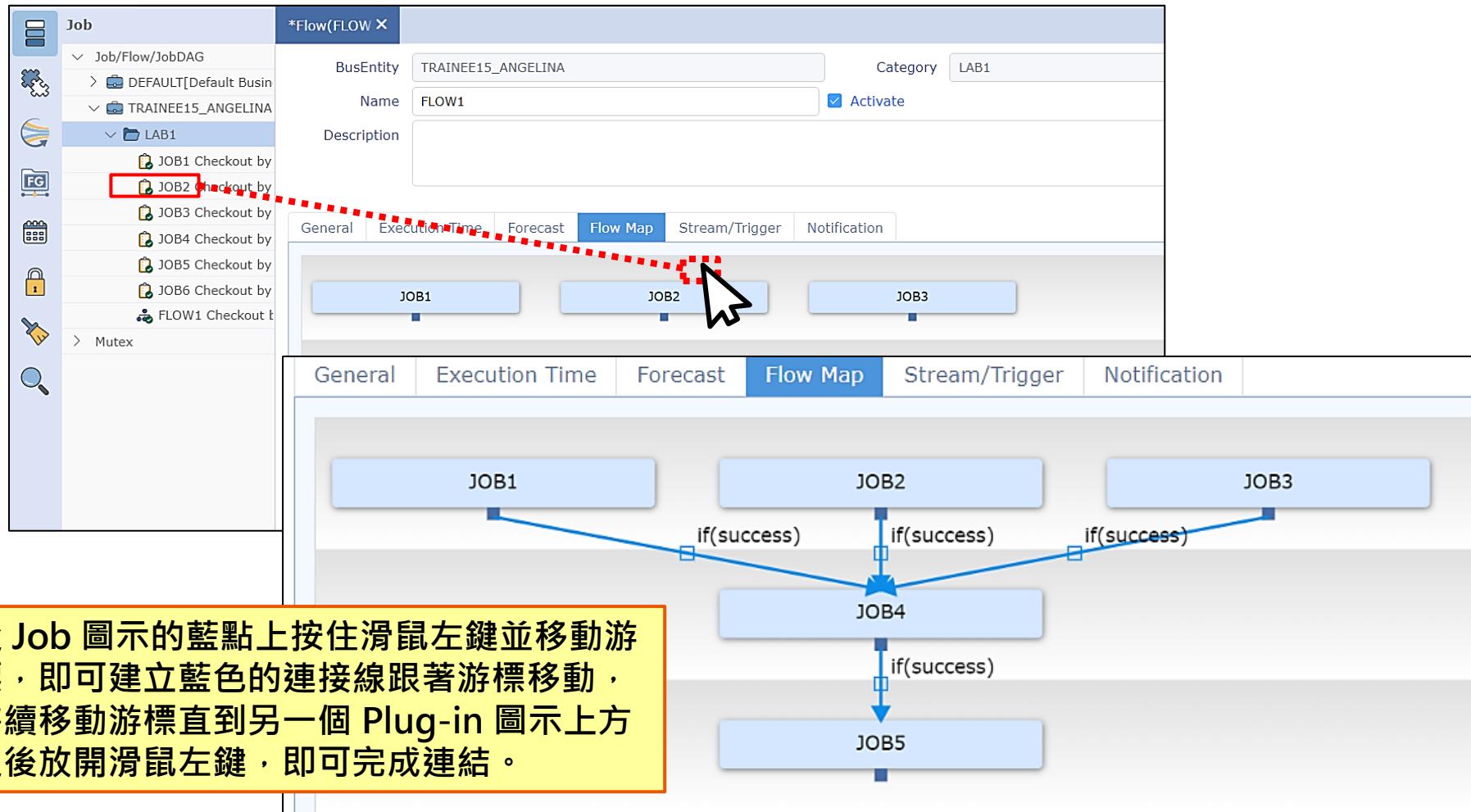
Lab 8：編輯 Flow Map

- 於Web JF Designer 編輯 Flow Map
 - Job Flow編輯畫面中點選“Flow Map”頁簽，於頁面當中以滑鼠右鍵開啟選單增加至 3 層 Level。



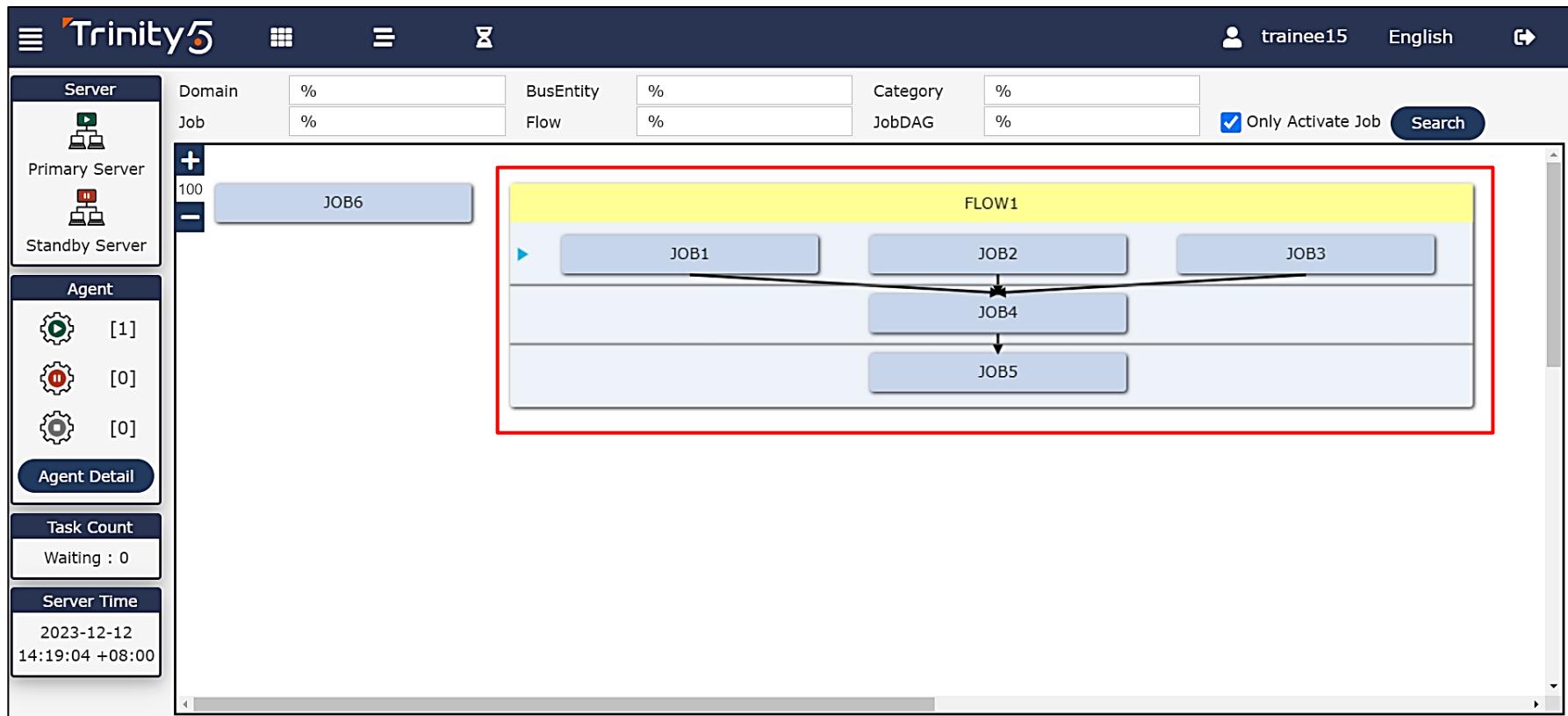
Lab 8：編輯 Flow Map

- 自樹狀視圖區中以滑鼠左鍵按住 Job 圖示拖曳至 Flow Map 頁面上的 Level 當中後放開滑鼠左鍵，即完成 Job 帶入 Map 的動作。



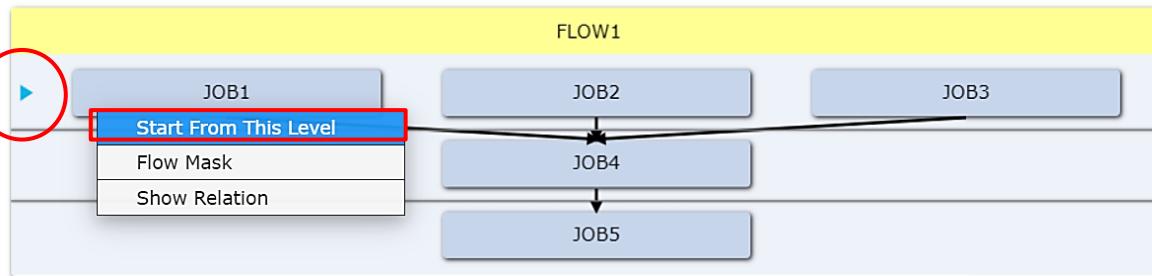
Lab 8：觀察 Job Flow 的執行效果

- 於Web Task Console 圖形化介面可呈現 Job Flow 關係



Job Flow - 於 Task Console 執行方式說明

- 執行時可配合編輯作業流程控制，達到部分執行的效果
 - 選定該 Level 上的任一 Job，以滑鼠右鍵開啟選單並點選“Start From This Level”，則藍色箭頭會移至該 Level，後續執行 Flow 時，將從此 Level 開始執行。
 - 以滑鼠右鍵開啟選單並點選“Flow Mask”，可於視窗中選擇要針對此 Job 的執行動作。



Flow Mask - JOB1

- None
- Skip Success Failure Return 0
- Endpoint Action Include Exclude
- Branch
- Tag

Submit

Job Flow 4.1版介紹

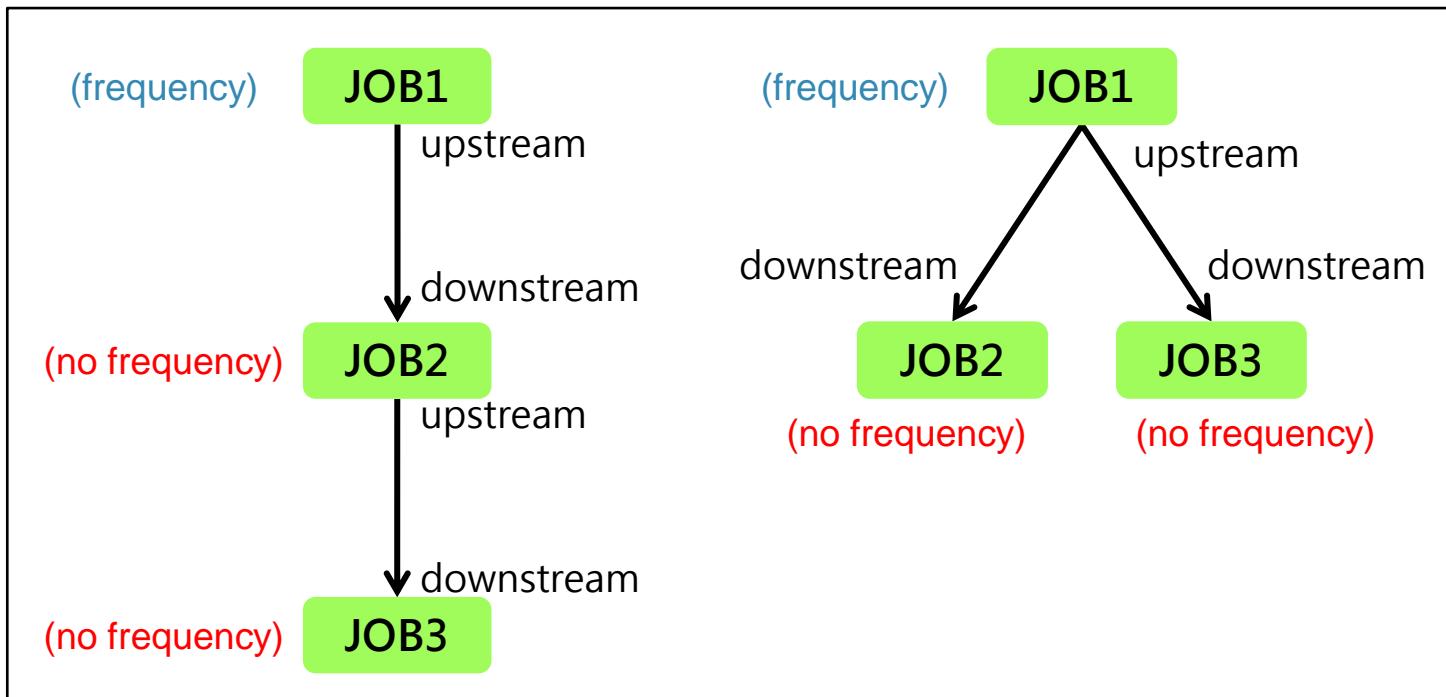
- Job Flow 4.1版介紹請參閱本講義“附錄3”說明。

Job Stream

Job Stream

- Job Stream 作業串流

- 用以設定作業的下游作業(Downstream Job)；所謂的下游作業是指在作業執行成功時會被自動觸發執行的作業，而一個擁有Job Stream的作業就被稱做是這些下游作業的上游作業(Upstream Job)。
- 一個作業可以設定觸發多個下游作業。這些下游作業在被觸發後是同時執行的，作業彼此間並無先後順序。



Job Stream - 新增

- 於Web JF Designer 新增 Job Stream
 - 於樹狀視圖區中選擇目標 Job 開啟編輯畫面，點選「Stream/Trigger」頁面，點擊加號圖示，開啟設定下游作業視窗。

The screenshot shows the 'Job(JOB1)' configuration screen in the Web JF Designer. The 'Stream/Trigger' tab is selected. A yellow callout box highlights the 'Stream Job Name' field, which contains the value 'TRAINEE15_ANGELINA::LAB1.JOB1'. Another yellow callout box highlights the 'Activate' checkbox, which is checked. The 'Down Stream Job' dialog is open, showing a tree view of jobs under 'TRAINEE15_ANGELINA::LAB1'. The 'JOB2' node is selected. The 'Stream Job Name' field in the dialog also contains 'TRAINEE15_ANGELINA::LAB1.JOB2'. The 'Activate' checkbox is checked in the dialog as well.

Job(JOB1) X

BusEntity: TRAINEE15_ANGELINA Category: LAB1

Name: JOB1

Description:

General Execution Time Forecast Note Variable Step Stream/Trigger Dependency Source/Target Notification

Job Stream

No Data

+

Down Stream Job

Name:

- > DEFAULT [Default Business Entity]
- ▽ TRAINEE15_ANGELINA
 - ▽ LAB1
 - JOB2
 - JOB3
 - JOB4
 - JOB5
 - JOB6
 - FLOW1

Stream Job Name: TRAINEE15_ANGELINA::LAB1.JOB2

Description:

Activate Synchronized
 Use Down Stream Job TxDate Rule

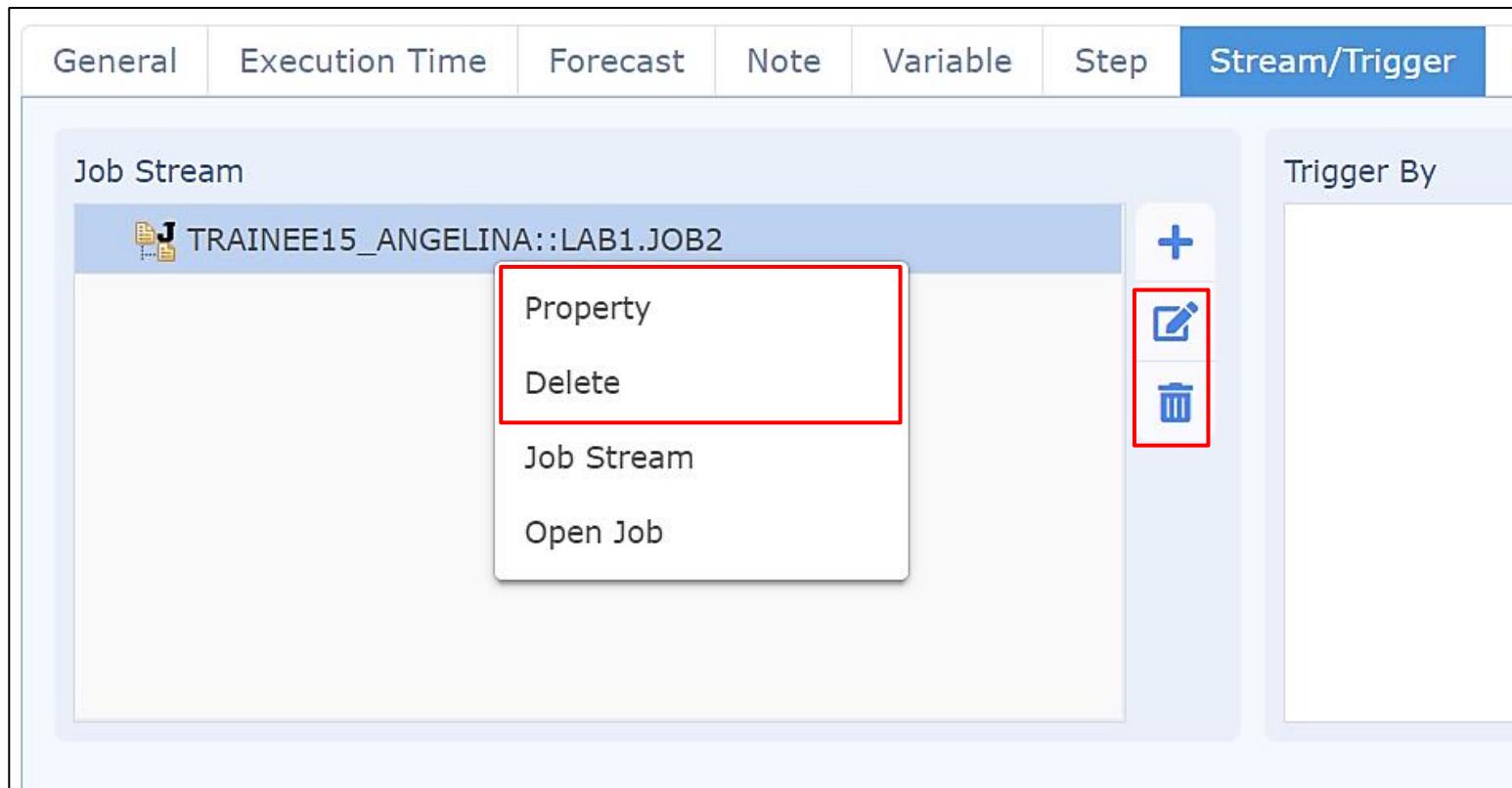
Cancel Save

Stream Job Name : 以左鍵選擇目標 Job 後，會自動帶入所選擇作業的全路徑名稱，格式是以 <Entity>::<Category>.<Job>的方式呈現

Activate : 勾選代表啟用

Job Stream - 編輯、刪除

- 於Web JF Designer 編輯、刪除 Job Stream
 - 選擇要修改的下游作業，以滑鼠右鍵開啟選單並點選“Property”或“Delete”，或於工具列中點選“Property”或“Delete”圖示進行



Job Stream -Web Task Console 呈現畫面

- 於Web Task Console 圖形化介面可呈現 Job Stream 關係，以 Job1 設定 Job Stream 定義關係到 Job2 為例，會以實線箭頭由上游指向到下游 Job。



Job Stream 4.1版介紹

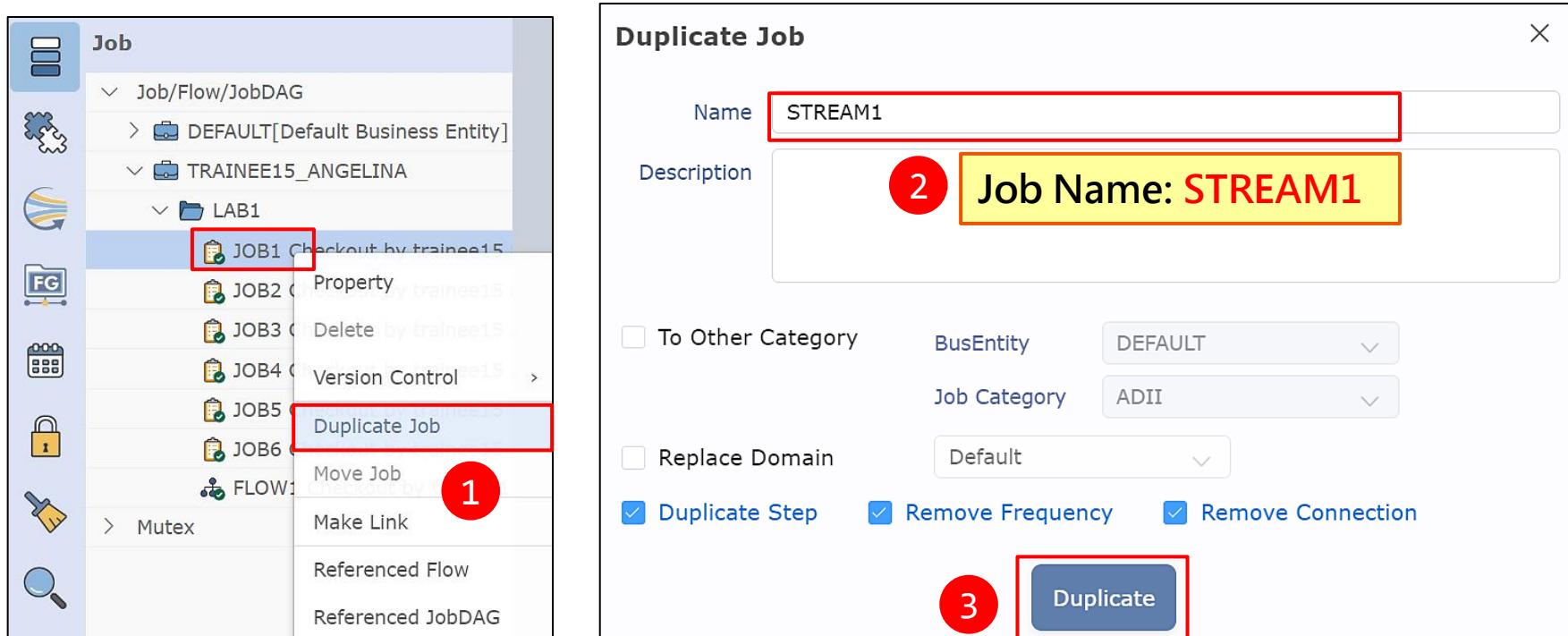
- Job Stream 4.1版介紹請參閱本講義“附錄4”說明。

Lab 9

Job Stream

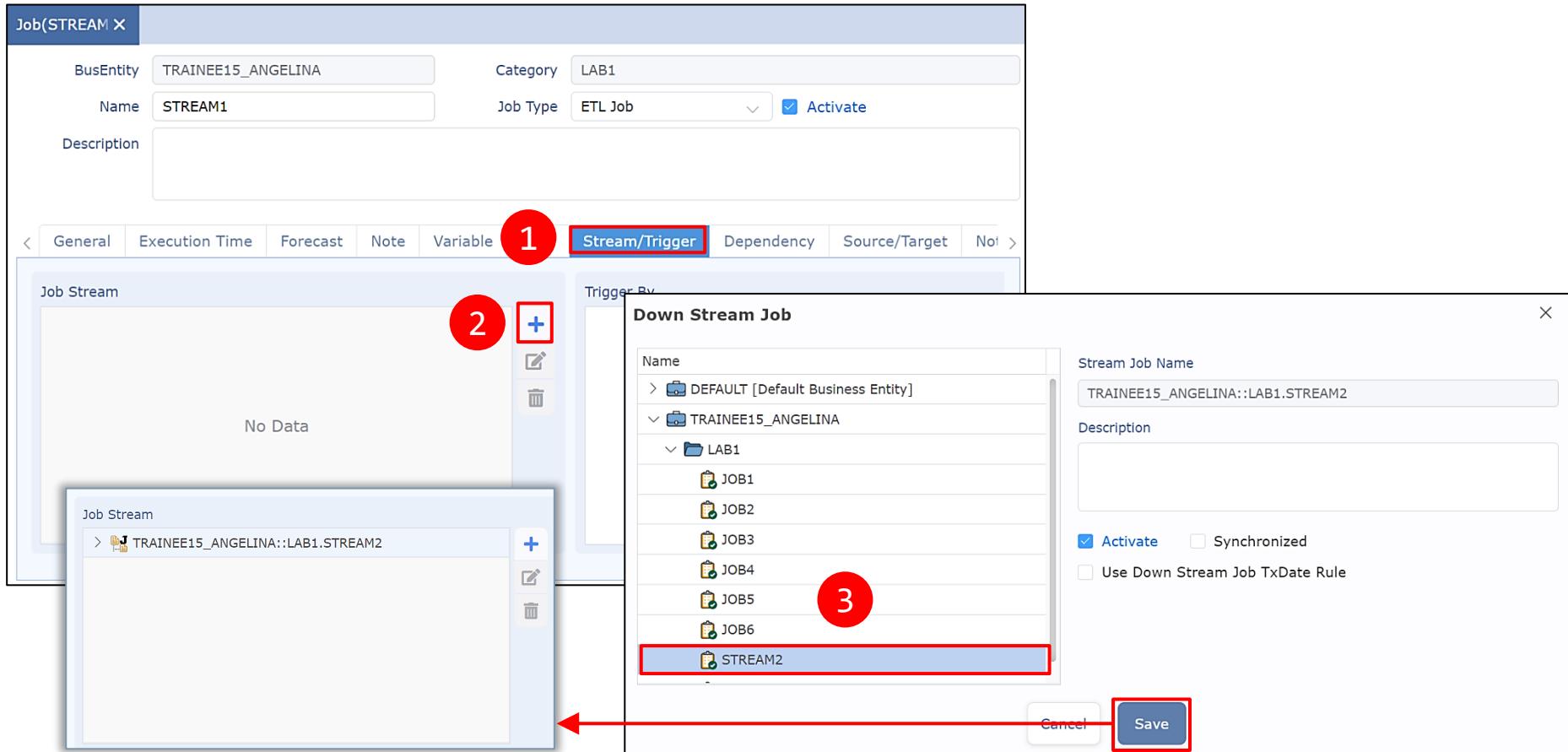
Lab 9：建立 Job

- 於Web JF Designer 以複製的方式快速佈署 Job：
 - 選擇既有的 Job(**JOB1**)後以滑鼠右鍵開啟選單並點選” Duplicate Job”，於對話視窗當中將 Job Name 改為” **STREAM1** ”，再按下” Duplicate ”，完成複製。
 - 以相同步驟複製出另一個 Job，命名為” **STREAM2** ”



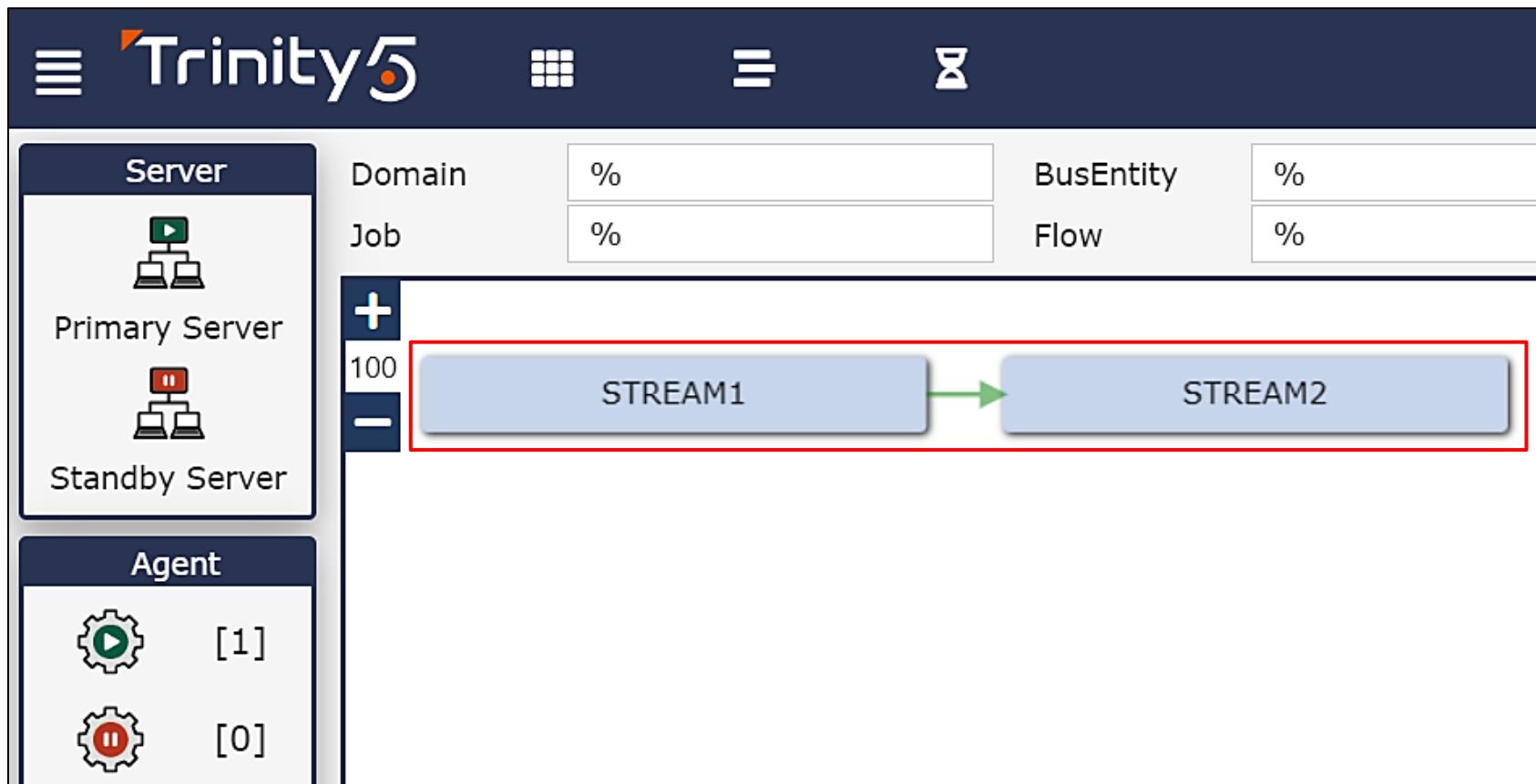
Lab 9：建立 Stream 關係

- 情境：STREAM1 執行完畢必須觸發 STREAM2 執行
 - 開啟上游 Job(STREAM1) 編輯畫面，點選「Stream/Trigger」頁面，點擊加號圖示建立一個Stream關係指到下游 Job(STREAM2)。



Lab 9：觀察 Stream 關係的執行效果

- 於Web Task Console 圖形化介面可呈現 Job Stream 關係。



Job Dependency

Job Dependency

- Job Dependency 作業依賴條件

- 是用來設定作業執行前的檢核條件。此檢核條件會在準備執行作業之前用來檢查條件是否成立，若成立才會啟動作業的執行，若不成立則會持續定時地重複執行檢核條件，直到條件成立時才會開始作業的執行。
- 一項作業可以同時設定多個 Job Dependency，若設有多個 Job Dependency，則所有檢核條件都須成立才能執行作業。

	BusEntity	Category	Job
<input type="checkbox"/>	TRAINEE15_...	LAB1	JOB1
<input type="checkbox"/>	TRAINEE15_...	LAB1	JOB2

Dependent

JOBJ ← dependency → JOBT
S() AND TX() = THIS

Job2 執行時會檢核條件，條件成立才執行

Job Dependency - 檢核條件(函數)

Add

Name	BusEntity	Category	Job
> DEFAULT [Default Business Entity]			
<training> TRAINEE15_ANGELINA</training>	TRAINEE15_ANGELINA	LAB1	JOB1
<training> LAB1</training>	TRAINEE15_ANGELINA	LAB1	JOB2
<input checked="" type="checkbox"/> JOB1			
<input checked="" type="checkbox"/> JOB2			
<input type="checkbox"/> JOB3			
<input type="checkbox"/> JOB4			
<input type="checkbox"/> JOB5			
<input type="checkbox"/> JOB6			
<input type="checkbox"/> STREAM2			

Rule

Description

Activate Major Synchronized Excluded

Function:	Operator:	Explanation:
S	THIS	S 功能說明： 當依賴的作業為 Success 狀態時則傳回 True，否則傳回 False。 語法：S()
LS	THISTD	
F	THISTT	
D	THISTXDT	
R	THISTDT	

Explain Cancel Save

檢核條件的函數可以分成兩類：

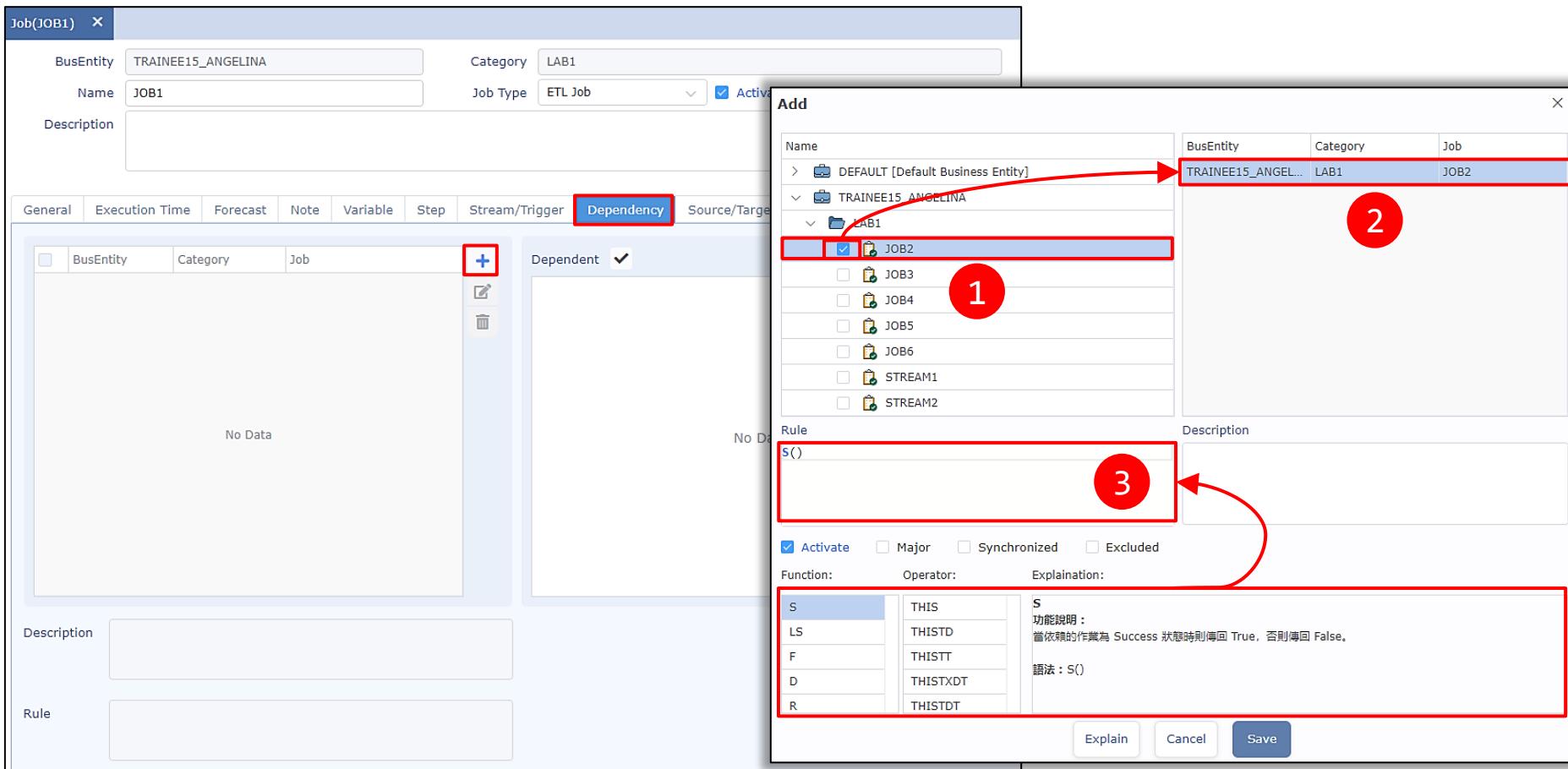
- 第一類：函數的傳回值為布林值可直接用來判斷條件是否成立。
- 第二類：函數的傳回值並不是布林值，而是傳回日期型態。此類函數無法直接用來判斷條件是否成立，而是必須搭配邏輯運算子才能判斷條件的成立與否。

Job Dependency - 檢核條件(函數)

- **S()**
 - 必須是所依賴作業的目前狀態為成功時，此條件的判斷結果才為成立。
- **TX() = THIS**
 - 必須是所依賴作業的資料日期等於目前作業任務的資料日期時，此條件的判斷結果才為成立。
- **S() AND TX() = THIS**
 - 必須是所依賴作業的目前狀態為成功同時其資料日期等於目前作業工作的資料日期時，此條件的判斷結果才為成立。
- **S() AND TX() = MONEND THIS, -1)**
 - 必須是所依賴作業的目前狀態為成功同時其資料日期等於目前作業工作的資料日期的前一個月的月底日時，此條件的判斷結果才為成立。
- **S() AND (TX()>=WEEKBEGIN THIS, -1) AND TX()<=WEEKEND THIS, -1))**
 - 必須是所依賴作業的目前狀態為成功同時其資料日期等於目前作業工作的資料日期的前一週的範圍之內，此條件的判斷結果才為成立。

Job Dependency - 新增

- 於Web JF Designer 新增 Job Dependency
 - 於樹狀視圖區中選擇目標 Job 開啟編輯畫面，點選「Dependency」頁面，點擊加號圖示，開啟設定依賴作業視窗。



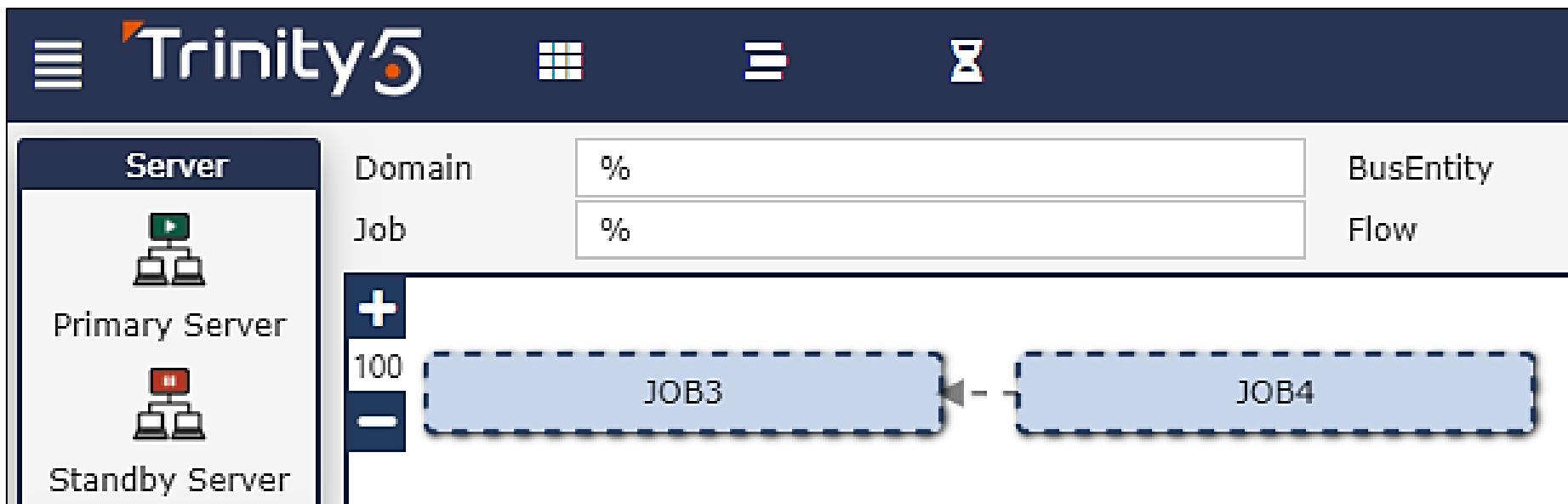
Job Dependency - 編輯、刪除

- 於Web JF Designer 編輯、刪除 Job Dependency
 - 選取要修改的依賴作業，於工具列中點選“Property”或“Delete”圖示進行。

The screenshot shows the 'Dependency' tab selected in the top navigation bar of the Web JF Designer. The main area displays a grid of job dependencies. One specific row is highlighted with a red box, containing the values: BusEntity (TRAINEE15_A...), Category (LAB1), and Job (JOB2). To the right of the grid, there is a toolbar with three icons: a plus sign (+) for adding new dependencies, a pencil (edit) icon, and a trash can (delete) icon. Both the edit and delete icons are also highlighted with red boxes. On the far right of the dependency grid, there is a status message 'No Data'.

Job Dependency -Web Task Console 呈現畫面

- 於Web Task Console 圖形化介面可呈現 Job Dependency 關係，以 Job4 設定 Job Dependency 定義關係到 Job3 為例，會以虛線框住 Job 並以虛線箭頭指向依賴的 Job 。



Job Dependency 4.1版介紹

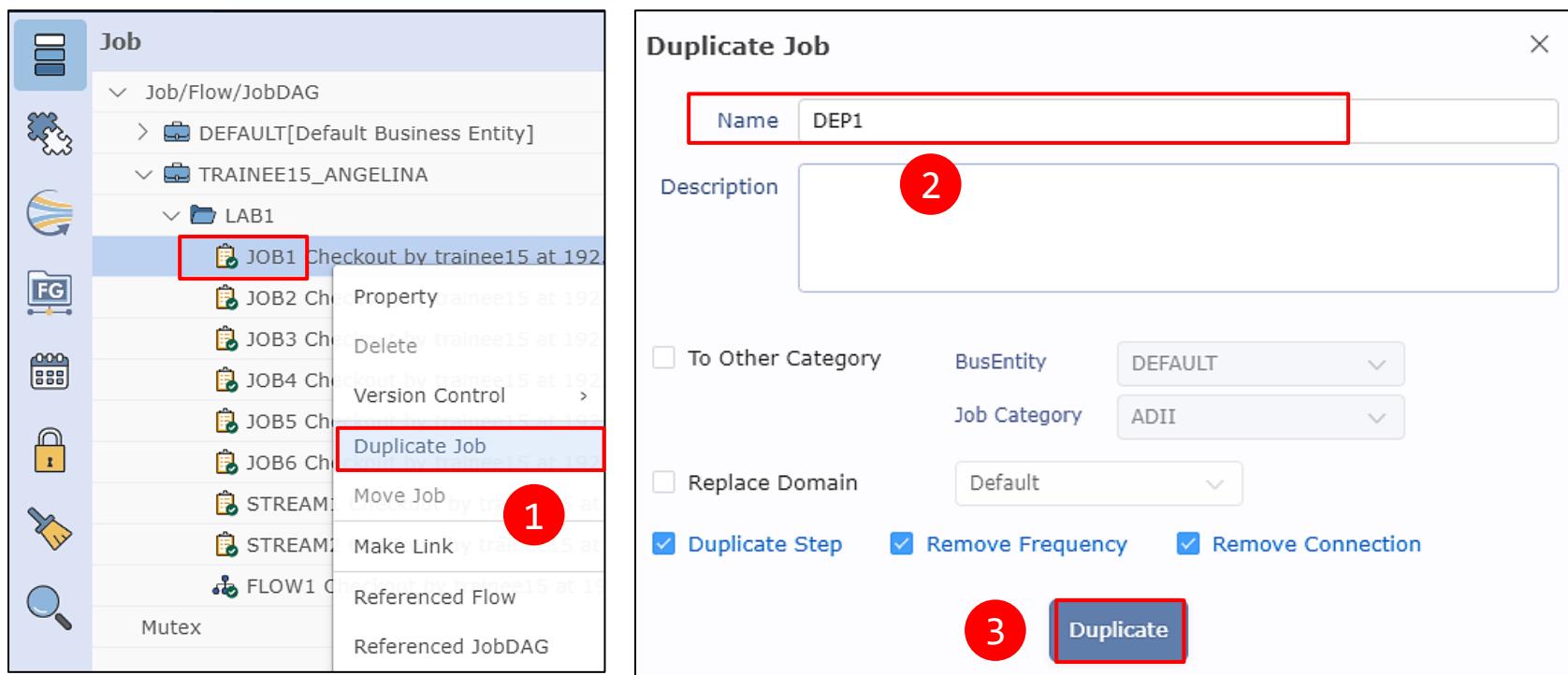
- Job Dependency 4.1版介紹請參閱本講義“附錄5”說明。

Lab 10

Job Dependency

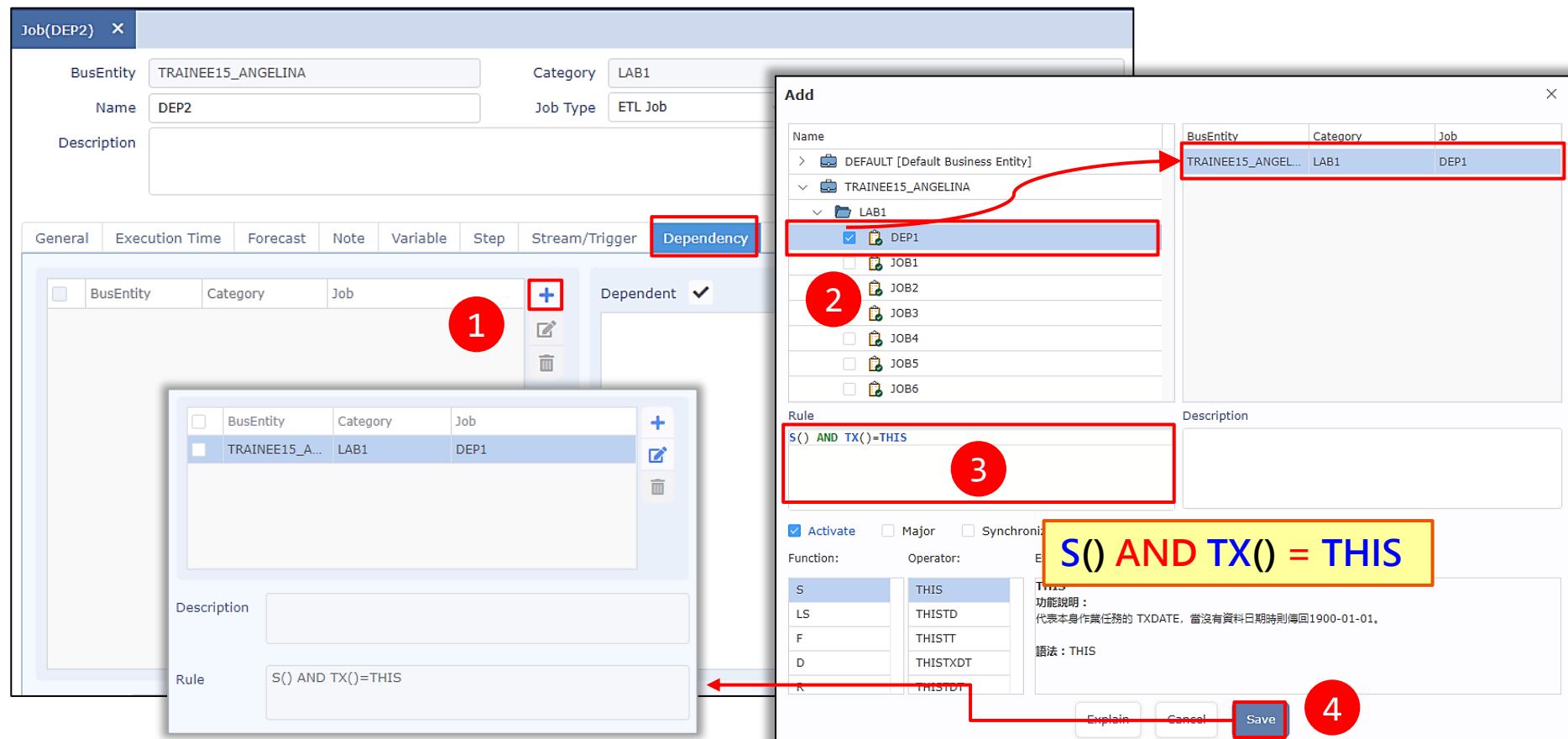
Lab 10：建立 Job

- 於Web JF Designer 以複製的方式快速佈署 Job：
 - 選擇既有的 Job(**JOB1**)後以滑鼠右鍵開啟選單並點選” Duplicate Job”，於對話視窗當中將 Job Name 改為” **DEP1** ”，再按下” Duplicate ”，完成複製。
 - 以相同步驟複製出另一個 Job，命名為” **DEP2** ”



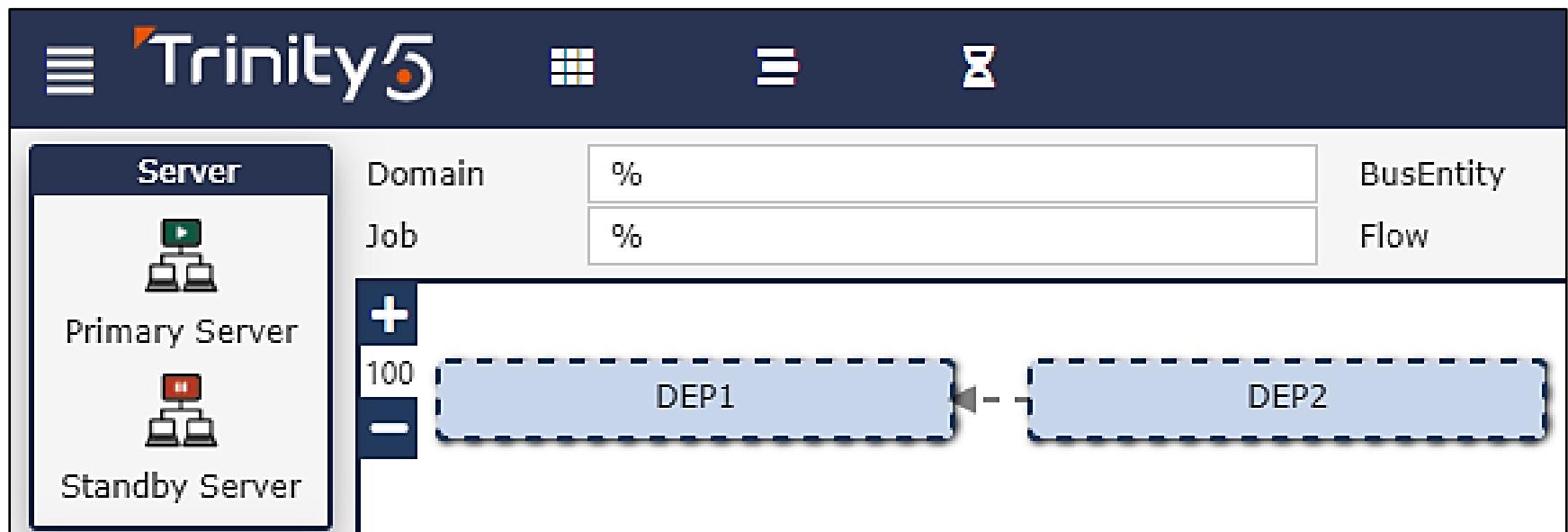
Lab 10：建立 Dependency 關係

- 情境：DEP2 執行前，需檢查 DEP2 與 DEP1 相關的檢核條件必須成立，DEP2 才可執行
 - 選擇目標 Job(DEP2)開啟編輯畫面，點選「Dependency」頁面，點擊加號圖示，開啟設定依賴作業視窗，建立一個 Dependency 關係指到關係 Job(DEP1)。



Lab 10：觀察 Dependency 關係的執行效果

- 於Web Task Console 圖形化介面可呈現 Job Dependency 關係。



Dependent Job & Trigger by

Web JF Designer -- Dependent Job & Trigger by

- **Dependent Job**
 - 可檢視此作業被哪些作業定義為 Job Dependency Rule 的關係對象。
- **Trigger by**
 - 可檢視此作業被哪些作業定義為 Job Stream 的關係對象。

The screenshot displays two job configurations in the Web JF Designer:

- Job DEP1 (Top):**
 - General Tab:** BusEntity: TRAINEE15_ANGELINA, Name: DEP1, Category: LAB1, Job Type: ETL Job, Activate checked.
 - Dependency Tab:** Shows a relationship where DEP1 is a dependent job (marked with a checkmark) triggered by another job named TRAINEE15_ANGELINA::LAB1.DEP2.
- Job STREAM2 (Bottom):**
 - General Tab:** BusEntity: TRAINEE15_ANGELINA, Name: STREAM2, Category: LAB1, Job Type: ETL Job, Activate checked.
 - Trigger By Tab:** Shows a relationship where STREAM2 is triggered by another job named TRAINEE15_ANGELINA::LAB1.STREAM1.

Dependent Job & Trigger by 4.1版介紹

- Dependent Job & Trigger by 4.1版介紹請參閱本講義“附錄6”說明。

Mutex

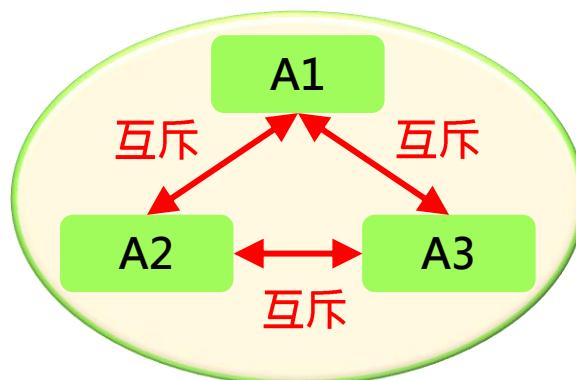
Mutex

-

Mutex 互斥

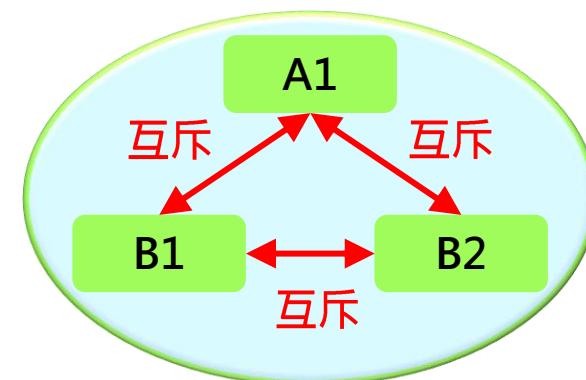
- 透過互斥作業的設定，讓同一時間內，Mutex 中只會有一個作業在執行，以提供較為方便簡易的單一作業執行控制功能
- JCSServer 在執行作業前會控制檢查同一個 Mutex 中只有一個作業正在執行

Mutex1



同時間只能其中一個作業執行

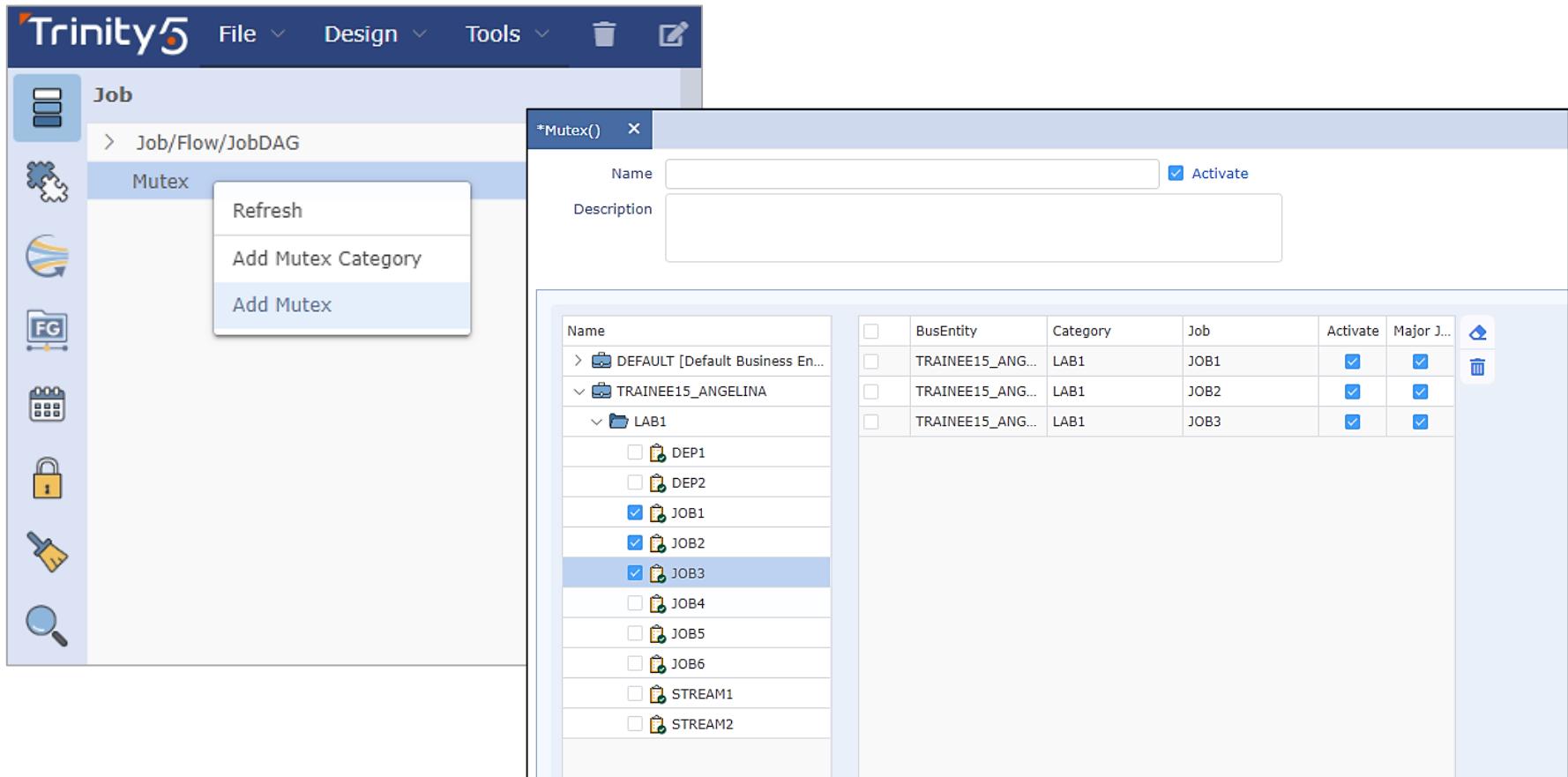
Mutex2



同時間只能其中一個作業執行

Mutex - 新增

- 於Web JF Designer 新增 Mutex
 - 於樹狀視圖區中先選擇 “Mutex” 後以滑鼠右鍵開啟選單並點選“Add Mutex” 進行。



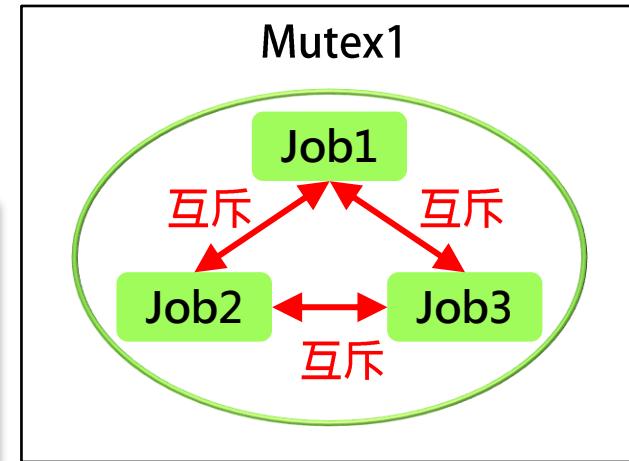
Mutex - 新增

- Major Job 選項全部勾選，則 Job 兩兩互斥；
Major Job 選項部分勾選，則未勾選的 Job 之間無互斥關係。

Name	BusEntity	Category	Job	Activate	Major Job
DEFAULT [Default Business En...			JOB1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
TRAINEE15_ANGELINA	TRAINEE15_...	LAB1	JOB2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
LAB1	TRAINEE15_...	LAB1	JOB3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
DEP1					
DEP2					
JOB1					
JOB2					
JOB3					
JOB4					
JOB5					

Major Job

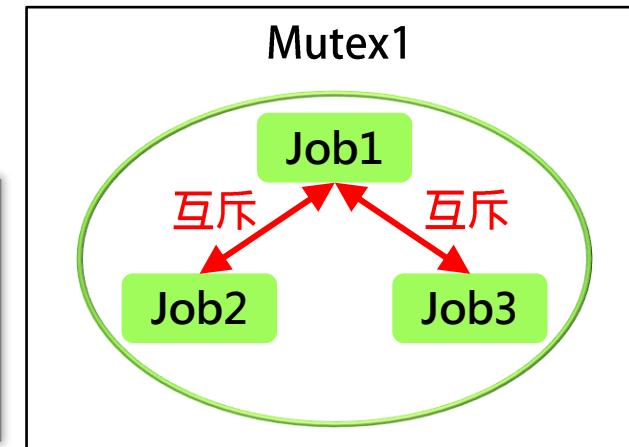
-
-
-



Name	BusEntity	Category	Job	Activate	Major Job
DEFAULT [Default Business En...			JOB1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
TRAINEE15_ANGELINA	TRAINEE15_...	LAB1	JOB2	<input checked="" type="checkbox"/>	<input type="checkbox"/>
LAB1	TRAINEE15_...	LAB1	JOB3	<input checked="" type="checkbox"/>	<input type="checkbox"/>
DEP1					
DEP2					
JOB1					
JOB2					
JOB3					
JOB4					
JOB5					

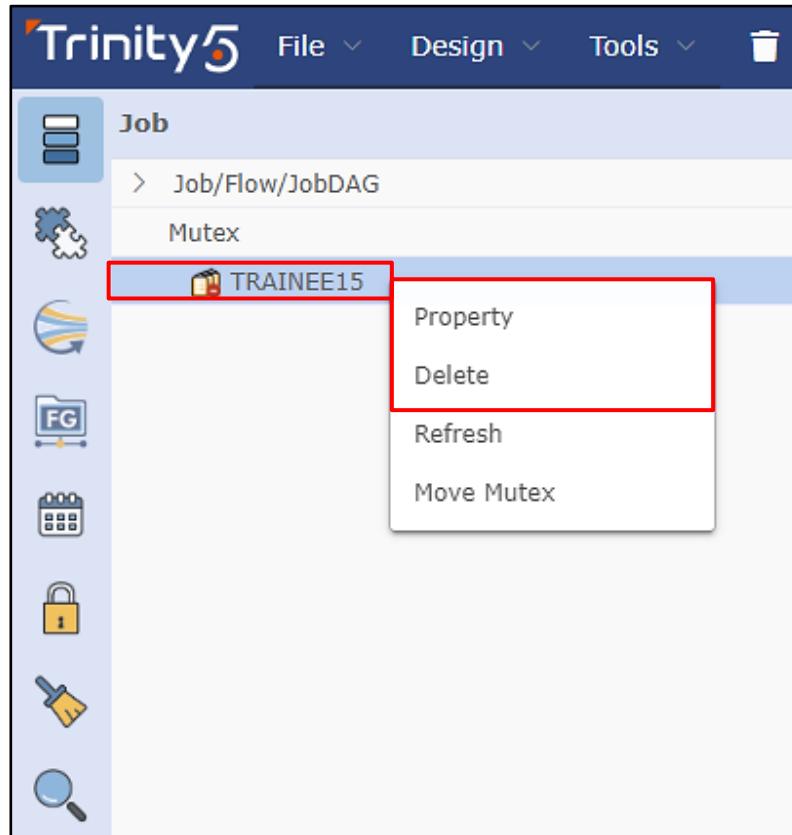
Major Job

-
-
-



Mutex - 編輯、刪除

- 於Web JF Designer 編輯、刪除 Mutex
 - 於樹狀視圖區中先選擇目標 Mutex 後以滑鼠右鍵開啟選單並點選” Property” 或” Delete” 進行。



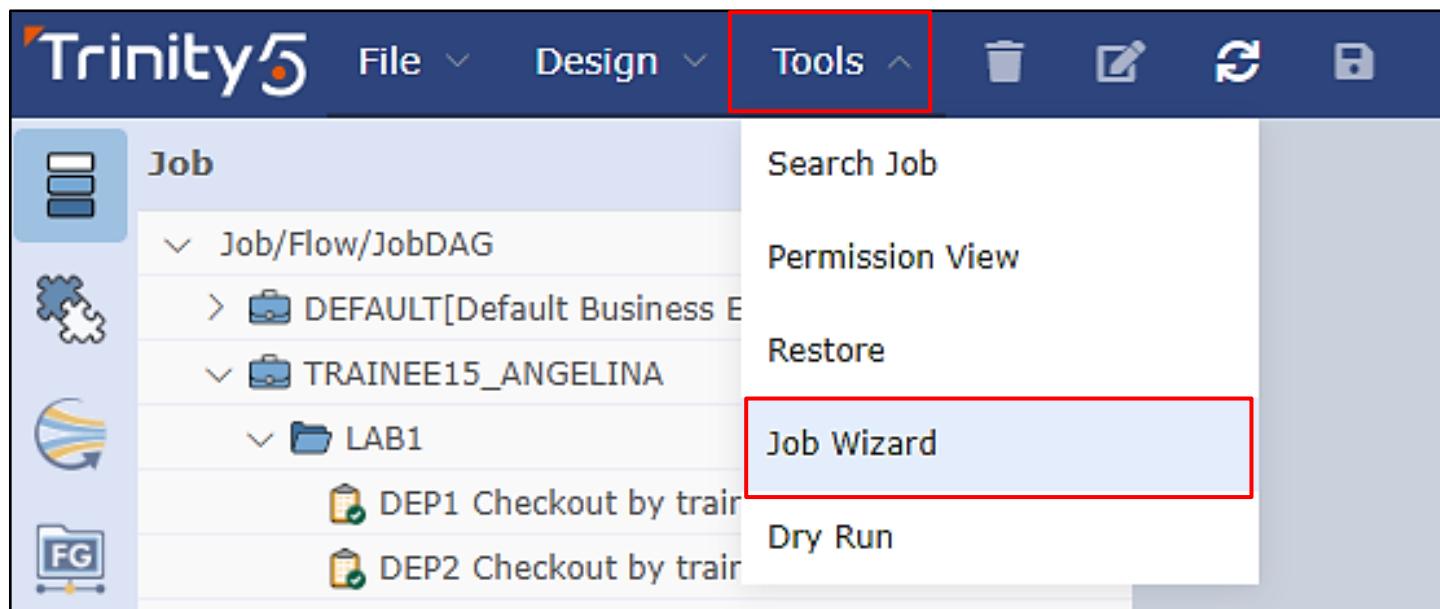
Mutex 4.1版介紹

- Mutex 4.1版介紹請參閱本講義“附錄7”說明。

Job Wizard 作業產生器

Job Wizard 作業產生器

- 可透過元數據表定義，批次建立大量相同設計的 ETL 作業
 - ETL 作業是指一個完整的 Job，其帶有一個 Step 且 Step 種類為“ Data Management” ，Step 當中的元件也已經佈署完畢。
 - 於Web JF Designer 系統選單點選「Tools」，選擇「Job Wizard」開啟介面。



Job Wizard 作業產生過程

Job Wizard

Please select the following tables :

Source Type: Metadata
Meta Database: TP_SOURCE

No	Meta Table Name	Update Time
1	customer	2019-11-22 16:21:41
2	delivery	2019-11-22 16:21:41
3	department	2019-11-22 16:21:42
4	goods	2019-11-22 16:21:42
5	nation	2019-11-22 16:21:42
6	orders	2019-11-22 16:21:42

勾選目標元數據表

Back Run Next

Job Wizard

Please select one of the following templates :

- Reader + Writer
- Reader + Default Transformer + Writer
- Multi Reader + Writer
- Reader + Multi Writer
- Multi Reader + Multi Writer

選擇 plug-in 設計架構

Back Run Next

Job Wizard

Please set the following job attributes :

Name Prefix:
BusEntity: DEFAULT
Category: Select
Domain: Default
Agent: LOCAL_AGENT

因應所選擇的 plug-in 設計架構，顯示不同的設定畫面，提供使用者輸入。

Back Run Next

Job Wizard

Please click run button to start job wizard :

100%

Job 批次建立完畢

Back Run Next

Job Wizard 作業產生結果

- 執行完畢，可在作業階層下看到建立出來的 ETL Job。

The screenshot shows the Trinity5 software interface for creating ETL jobs. On the left, the 'Job' tree view lists various business entities and steps. A red arrow points to the 'A01_CUSTOMER Checkout by trainee15 at 192.168.27.75' step under the 'LAB' folder. The main workspace displays the 'Step(A01_CUSTOMER)' configuration screen. The 'Design' tab is selected, showing a flow diagram with a 'reader' icon connected to a 'writer' icon. Below the diagram is the 'Plugin [reader] Property Editor' window, which is set to 'JDBC Reader - Generic'. It shows properties for a DB connection named 'LOCAL_TP' and a table named 'nation'. The 'Property Value' section includes columns for Column Name, Column Type, Key, Min, Max, Scale, Fixed Length, Trim, and In. A table below lists column details:

No	Column Name	Column Type	Key	Min	Max	Scale	Fixed Length	Trim	In
1	n_nid	text	<input checked="" type="checkbox"/>	0	5	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2	n_name	text	<input checked="" type="checkbox"/>	0	15	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3	n_startdate	date	<input checked="" type="checkbox"/>	0	13	0	<input type="checkbox"/>	<input type="checkbox"/>	
4	n_enddate	date	<input checked="" type="checkbox"/>	0	13	0	<input type="checkbox"/>	<input type="checkbox"/>	
5	n_comment	text	<input checked="" type="checkbox"/>	0	80	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

At the bottom right of the editor is an 'OK' button.

Job Wizard 4.1版介紹

- Job Wizard 4.1版介紹請參閱本講義“附錄8”說明。

Lab 11

運用 Job Wizard 快速佈署 ETL 作業

Lab 11：運用 Job Wizard 快速佈署 ETL 作業

- 於Web JF Designer運用 Job Wizard 快速佈署 ETL 作業
 - 於系統選單點選「Tools」，選擇「Job Wizard」開啟介面。

The screenshot shows the Trinity5 Job Wizard interface. At the top, there's a navigation bar with 'Trinity5' logo, 'File', 'Design', 'Tools' (which is highlighted with a red box), and other icons like trash, edit, and refresh. A sidebar on the right contains links: 'Search Job', 'Permission View', 'Business E...', 'Job Wizard' (which is also highlighted with a red box), and 'Dry Run'. The main area is titled 'Job Wizard' and has a sub-section 'Please select the following tables :'. It includes dropdown menus for 'Source Type' (set to 'Metadata') and 'Meta Database' (set to 'TP_SOURCE'), both of which are also highlighted with red boxes. Below these are two sections: one for selecting meta tables (with checkboxes for 'customer', 'delivery', 'department', 'goods', 'nation', 'orders', 'orders_sub', 'payment', and 'sales') and another for selecting update times. At the bottom, there are 'Back', 'Run', and 'Next' buttons, with 'Next' also highlighted with a red box.

No	Meta Table Name	Update Time
1	customer	2019-11-22 16:21:41
2	delivery	2019-11-22 16:21:41
3	department	2019-11-22 16:21:42
4	goods	2019-11-22 16:21:42
5	nation	2019-11-22 16:21:42
6	orders	2019-11-22 16:21:42
7	orders_sub	2019-11-22 16:21:42
8	payment	2019-11-22 16:21:42
9	sales	2019-11-22 16:21:42

Lab 11：運用 Job Wizard 快速佈署 ETL 作業

Job Wizard

Please select one of the following templates :

- Reader + Writer
- Reader + Default Transformer + Writer
- Multi Reader + Writer
- Reader + Multi Writer
- Multi Reader + Multi Writer

選擇 “ Reader + Writer ”

Back Run Next

Job Wizard

Please set the following job attributes :

Name Prefix	A01
BusEntity	TRAINEE15_ANGELINA
Category	LAB2
Domain	Default
Agent	LOCAL_AGENT

Name Prefix: A01
BusEntity: TRAINEE[N]
Category: LAB2
Domain: DEFAULT
Agent: LOCAL_AGENT

Job Wizard

Please set the following plugin attributes :

Reader Plugin	JDBC Reader - Generic
Source Connection	LOCAL_TP (JDBC)
Writer Plugin	File Writer - Text File, CSV Format
Target Connection	Select

Reader Plugin: JDBC Reader - Generic
Source Connection: LOCAL_TP
Writer Plugin: File Writer –Text File, CSV Format

Back Run Next

Lab 11：運用 Job Wizard 快速佈署 ETL 作業

Job Wizard

Please set the following reader plugin properties :

Source Database Name: tp

Back Run Next

Job Wizard

Please set the following writer plugin properties :

File Path: /home/netpro/share/training/trainee15
File Name:
File Name Prefix: aa
File Name Suffix: bb
Delimiter: ,
File Encoding:
 All Quote
 Output Title

Job Wizard

Please click run button to start job wizard :

0%

Back Run Next

Job Wizard

File Path: /home/netpro/share/training/trainee[N]
File Name Prefix: aa
File Name Suffix: bb
Delimiter: ,

100%

Job Wizard has been completed.

Back Run Next

Lab 11：佈署完成

- 執行完畢，可在作業階層下看到建立出來的 ETL Job。

The screenshot shows the Trinity5 application interface. On the left, there is a sidebar with various icons and a tree view of jobs. A red box highlights a section of the tree view under 'LAB' containing several ETL jobs, with 'A01_CUSTOMER Checkout by trainee15 at 192.168.27.75' being the selected item. The main workspace shows the 'Job(A01_CUSTOMER)' and 'Step(A01_CUSTOMER)' tabs. The 'Step(A01_CUSTOMER)' tab is active, displaying details like BusEntity (TRAINEE15_ANGELINA), Category (LAB2), and Step Name (A01_CUSTOMER). A large red arrow points from the highlighted job in the tree view to the 'writer' component in the step diagram. The 'Data File Setting' panel is open, showing the 'Assign File' tab selected with a file path of '/home/netpro/share/training/trainee15' and a file name of 'aacustomerbb'. Below the diagram, a detailed configuration window for the 'File Writer - Text File' plugin is shown, with a red box highlighting its title bar. This window includes fields for DBCon, Display Name, and various properties like DELIMITER, ENCODING, and NEWLINE_CHAR. To the right of the configuration window is a table showing column definitions:

No	Column Name	Column Type	DB Type	Key	Out	Max	Nullabl
1	s_sid	text	varchar(5)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	5	<input checked="" type="checkbox"/>
2	s_name	text	varchar(30)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	30	<input checked="" type="checkbox"/>
3	s_depid	text	varchar(5)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	5	<input checked="" type="checkbox"/>

發送 Mail 及通知

Mail Step

- Mail Step
 - 提供寄送電子郵件到指定的郵件帳號，並可以指定所需附加的檔案。

Select New Job Step Type

X

EXTERNAL COMMAND	DATA MANAGEMENT	TERADATA SCRIPT	SQL SCRIPT	FTP
MAIL	BIGDATA	RECOVERY DM	SQL REPORT	REST CLIENT

Send Mail

Step Name

Continue

Mail Step 寄送 E-mail 設定

*Step(Add MAIL)

BusEntity	TRAINEE15_ANGELINA	Category	LAB2	Job	A01_CUSTOMER	
Step Name	MAIL	Step Type	MAIL	<input checked="" type="checkbox"/> Activate		
Description						
Success Rule	Equal To	Success Value 1	- 0 +	Success Value 2	- 0 +	
General File Statistic Postcondition						
Mail Server	Select	...				
Subject						
Content	<input type="radio"/> Input Content File Path	<input checked="" type="checkbox"/> Delete File				
Input Content						
Mail From						
File Statistic Postcondition						
Mailing List File Path						
Send Mail If	<input type="radio"/> File Exists					
<input checked="" type="radio"/> All File Size(bytes) >=						
0						
<input type="radio"/> All File Text Line Number >=						
0						
Action After Sending Mail	<input checked="" type="radio"/> Do Nothing	<input type="radio"/> Delete File				
<input type="radio"/> Move File To (Folder Path)						
Attach File Path	File or dir path	File Name	Charset	Zip File	+ ▲ ▼ ■	
No Data						

主旨、內文皆可帶入變數；內文部份可支援 Html 語法

透過事先編輯收件者清單，可同時寄送給多位收件者

可選擇特定檔案做為附件

Mail Step -- Mailing List File Path

- Mailing List File Path : 寄送電子郵件帳號的檔案位置，電子郵件帳號以檔案的方式存在，必須在 JCS Agent 所能讀取到的位置，其格式包括：
 - ii. 斷行
 - aaa@mail.com
 - bbb@mail.com
 - iii. 分號 : aaa@mail.com;bbb@mail.com
 - iv. 逗號 : aaa@mail.com,bbb@mail.com

Notification

- **Notification 訊息通知**

- 透過訊息通知的設定可以即時掌握各個作業執行的情況，使用者可以決定在作業執行的哪個時間點，採用SMS或是E-Mail的方式來通知群組或是使用者作業執行的情形。
- 可針對 Job 、Category 或 Business Entity 作業階層設定 Notification
- 若所有作業階層皆有設定 Notification，則以範圍小的作業階層設置為主，相同條件不會重複通知。

Edit BusEntity

Basic **Notification** Variable

No	Name	Description

Edit Category

Basic **Notification** Variable

No	Name	Description

Job(JOB1) X

BusEntity: TRAINEE15_ANGELINA Category: LAB1
Name: JOB1 Job Type: ETL Job Activate
Description:

General Execution Time Forecast Note Variable Step Stream/Trigger Dependency Source/Target **Notification**

No	Name	Description

Submit

寄送 Notification 設定

- 訊息種類
 - 電子郵件
 - 行動短訊
 - External Command
 - HTTP Action
- 訊息發送時機
 - 作業執行開始時
 - 作業執行完成時
 - 作業執行成功時
 - 作業執行失敗時
 - 超過接收檔案時間
 - 作業執行過久時
 - 等待時間過長時
 - 作業重新執行時
 - 未設定後續的排程日期

The screenshot shows the 'Notification' configuration interface. At the top, there are fields for 'Name' and 'Description'. Below these is a 'Timing' dropdown set to 'When Task Begin', which is highlighted with a yellow box and an arrow labeled '訊息發送時機' (Message Delivery Timing). The interface includes tabs for 'Email' (which is selected and highlighted in blue), 'SMS', 'External Command', and 'HTTP Action'. Below the tabs are fields for 'Activate', 'NTLM Domain', 'Auth Mechanisms', 'Message Subject', 'Message Content', and an 'Attach Output Log' checkbox. A 'Notification List' section contains 'Group' and 'User' tabs, a table with columns 'No', 'Activate', and 'Name', and a message 'No Data'. At the bottom right is a 'Submit' button.

寄送 Notification 設定

- 電子郵件訊息環境設定

- 由 Root 或 Administrator 角色的使用者於 Admin UI -> System -> Configuration 中進行設定。

The screenshot shows the Trinity5 Admin UI interface. On the left, there is a sidebar with various menu items: Alias Reference, Domain, Connection, File Source, JCS Agent, Virtual Agent, Schedule, Working Calendar, Frequency, Exclude Frequency, System (which is selected), Configuration (which is highlighted with a red box), Server Monitor, Driver Manager, External Rule, License Status, and DIS Setting.

The main content area displays the 'Configuration' page. It includes sections for 'Version ID' (5.0.0), 'Redundant Server' (unchecked), 'Primary Server' (IP: 192.168.17.111), 'Primary Server Port' (1868), 'Standby Server' (IP: 192.168.17.111), 'Standby Server Port' (0), and two 'Test Connection' buttons. Below these is the 'SMTP Setting' section, which is also highlighted with a red box. It contains fields for 'Server' (IP: 192.168.17.113), 'Account' (trinity), and 'Password' (redacted). Further down is the 'Authentication Setting' section, which includes 'Account Authentication' (Trinity), a 'Password Policy' button, 'LDAP Server' (IP: 192.168.17.113), and 'Default Domain' (IP: 192.168.17.113). At the bottom are 'Reset', 'Cancel', and 'Save' buttons.

A large yellow callout box with a red border and a red arrow points from the text 'Mail Server 資訊如何設定？' to the 'SMTP Setting' section of the configuration form.

Notification

Name:

Description:

Timing: When Task Begin

Email SMS External Command HTTP Action

Activate:

NTLM Domain:

Auth Mechanisms: Select

Notification List: Group User

Mail Server 資訊如何設定？

寄送 Notification 設定

- 訊息收件者設定
 - 根據 Admin UI 當中使用者帳號設定值(Admin UI -> Account -> User)。

The screenshot illustrates the process of setting up a notification. On the left, the 'Notification' configuration window is open, showing fields for Name, Description, Timing (set to 'When Task Begin'), and an Email section. Below these are fields for NTLM Domain, Message Subject, and Message Content. A 'Notification List' section contains tabs for 'Group' and 'User'. The 'User' tab is selected, showing a list of users with a red box around the '+' button. A red arrow points from this button to a yellow callout box containing the question '收件者的連絡資訊為何？' (What are the recipient's contact information?).

On the right, the main Admin UI interface is shown. It features a navigation sidebar with 'Account', 'User' (selected), 'Role', 'User Group', 'Resource', and 'Alias Reference'. The 'User' page displays a table with columns 'User Name' and 'User ID'. Two entries are listed: 'Trinity Super User' (User ID: root) and 'trainee1' (User ID: trainee1). The 'User - Edit' dialog is open for the 'trainee1' user, showing fields for User ID (trainee1), User Name (trainee1), User Password, Confirm Password, Mobile Number, and Email. The 'Mobile Number' and 'Email' fields are highlighted with red boxes.

收件者的連絡資訊為何？

Notification - 新增

- 於Web JF Designer 新增 Notification

- 選擇欲新增Notification的Business Entity 或Category 項目，滑鼠左鍵點擊兩下開啟編輯視窗，選擇Notification 分頁點擊加號新增。
- 選擇Job編輯頁籤中的Notification分頁點擊加號新增。

The screenshot illustrates the process of adding a notification in the Web JF Designer. It shows three main windows:

- Job Tree View:** Shows the hierarchy under "Job/Flow/JobDAG". A red box highlights "TRAINEE15_ANGELINA". Inside this folder, "LAB1" is selected, indicated by a red box and a red arrow pointing to the "Edit BusEnt" button.
- Edit Business Entity Window:** A modal window for "Edit BusEnt" of "LAB1". It has tabs for "Basic", "Notification" (which is selected and highlighted in blue), and "Variable". A red arrow points from the "Edit BusEnt" button in the tree view to this window.
- Job Properties Window:** A detailed configuration window for "Job(JOB1)". It includes fields for "BusEntity" (TRAINEE15_ANGELINA), "Name" (JOB1), "Category" (LAB1), "Job Type" (ETL Job), and "Activate" (checked). A red arrow points from the "Notification" tab in the "Edit BusEnt" window to the "Notification" tab in this window.

Notification - 編輯、刪除

- 於Web JF Designer 編輯、刪除 Notification
 - 選擇要修改的目標 Notification，滑鼠點擊兩下，開啟編輯視窗。
 - 選擇要刪除的目標 Notification，點選畫面右方刪除圖示，即可刪除。

The screenshot displays two overlapping windows from the Web JF Designer application:

- Edit BusEntity** window (Top):
 - Tab bar: Basic (selected), Notification, Variable.
 - Table view:

No	Name	Description
1	ERROR	
 - A red box highlights the delete icon (+) in the top right corner of the table header.
- Edit Category** window (Bottom):
 - Tab bar: Basic (selected), Notification, Variable.
 - Form fields:

Job(JOB1)	BusEntity: TRAINEE15_ANGELINA	Category: LAB
Name: JOB1	Job Type: ETL Job	<input checked="" type="checkbox"/> Activate
Description:		
 - A red box highlights the delete icon (+) in the top right corner of the table header.
 - A red box highlights the delete icon (+) in the bottom right corner of the table header.

發送 Mail 及通知 4.1版介紹

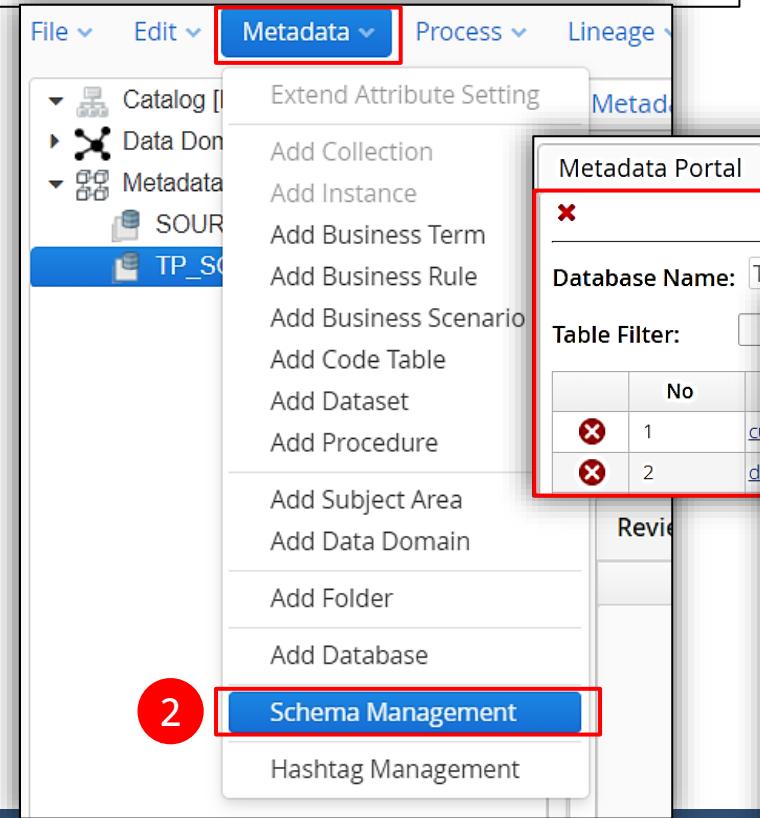
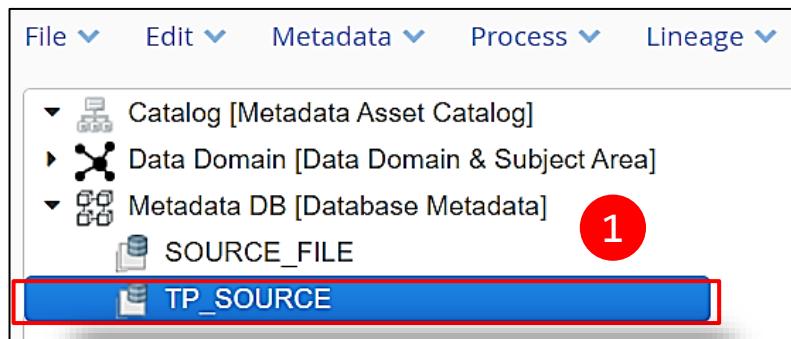
- 發送 Mail 及通知 4.1版介紹請參閱本講義“附錄9”說明。

Metadata 介紹

Metadata 介紹

- 於 Metaman 當中使用 Metadata 元數據管理模組：
 - 可使作業設計更有效率；後續也可運用其管理性相關的功能進行元數據管理。
 - 可自遠端元數據表匯入表定義至 Trinity 當中。
 - 可手動與遠端元數據表定義進行比對，呈現目前元數據表定義和遠端資料庫的表格之間欄位的差異。
 - 可設定自動比對排程，與遠端元數據表定義進行比對，並將產出的比對文件以 E-mail 夾帶附件的方式寄送給指定的收件者。

比對元數據表差異



- 於 Metaman 比對 Meta Table
 - 在樹狀視圖中選擇目標 Meta Database，再點選主選單中的 Metadata(元數據) -> Schema Management(綱要維護)
 - 於右方編輯區點擊右上方“Compare Schema”按紐，開啟功能畫面。

Database Name: TP_SOURCE

Table Filter:

No
1
2

Compare Schema

Pattern: Compare

Object Type: Ignore New Entity Table View Alias Synonym

No	Local Entity Name	Type	Status
1	customer	table	
2	delivery	table	
3	department	table	
4	goods	table	
5	nation	table	
6	orders	table	
7	orders_sub	table	
8	payment	table	
9	sales	table	

Import

Close

比對元數據表差異

1 全選

2 點擊 Compare

3 比對結果

4 點擊該表編號，可查看該表的差異比較

5 點擊欄位，可顯示欄位細節

Compare Schema

Pattern: New Entity Table View Alias Synonym

No	Local Entity Name	Type	Status
1	customer	table	
2	delivery	table	
3	department	table	
4	goods	table	
5	nation	table	
6	orders	table	
7	orders_sub	table	
8	payment	table	
9	sales	table	

Column Difference

No	Left Attribute Name	Right Attribute Name
1	c_cid	c_cid
2	c_name	c_name
3	c_se	
4	c_en	
5	c_cdate	
6	c_nid	c_nid

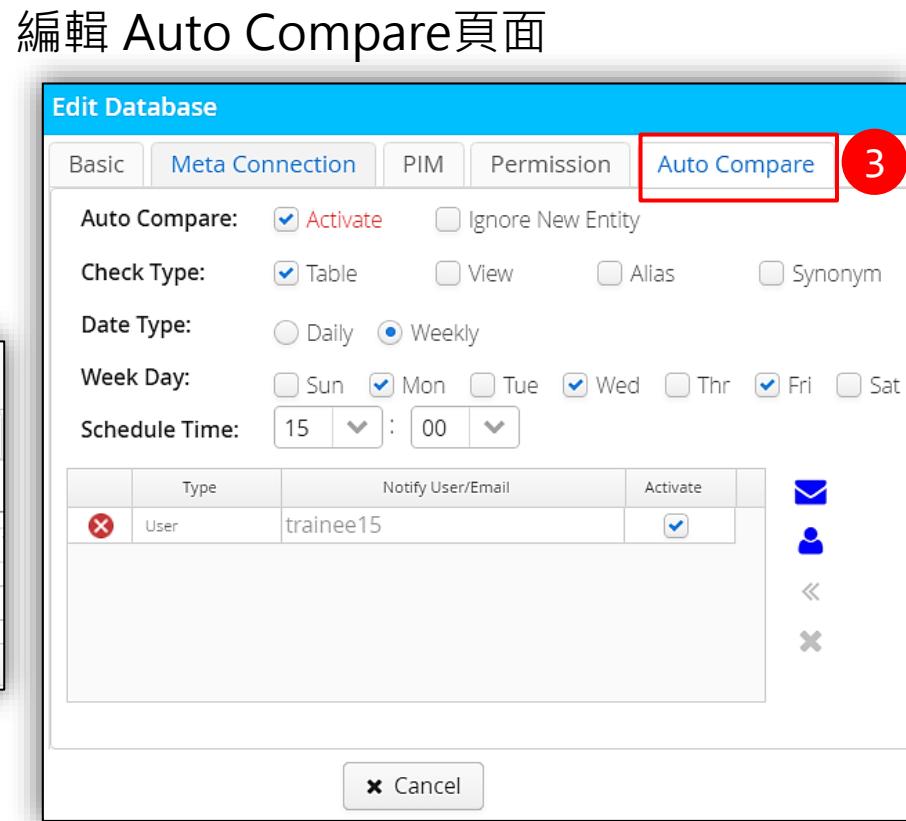
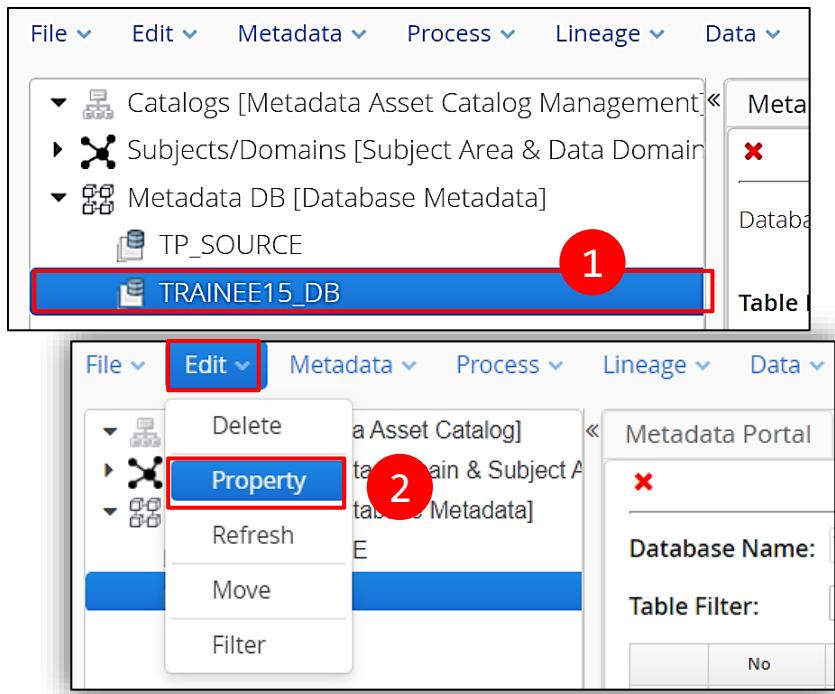
Attribute Name: c_name
Second Name:
Attribute Type: text
Physical Type: character varying(35)
Size: 35
Scale: 3
Key: false
Nullable: true
Default Value:
Auto Increment: false

Close

Trinity

定時自動產出元數據比對報表

- 於 Metaman 新增 Meta Database : TRAINEE[N]_DB
 - 在樹狀視圖中選擇目標 Meta Database (TRAINEE[N]_DB) , 再點選主選單中的Edit(編輯) -> Property(內容)



- 須先設定 Metaman 發送郵件通知的 SMTP 服務器
(位置：主選單中的File -> System Configuration)

Trinity 資源監控

Server Monitor

- 可以設定是否監控 Server/Agent 上的系統資源使用情形，當 CPU 及 Memory 的使用量超過設定值或是硬體空間小於設定值時，可發出 Alert 來通知相關負責人。
- 啟用 Server Monitor 後，使用者即可於 Task Console 相關功能查看當下的資源使用情形。

The screenshot shows a web-based configuration interface for the Server Monitor. At the top, there is a navigation bar with two tabs: "Monitor" (which is selected) and "Notification". Below the tabs, there is a search bar labeled "Search For Name" containing the text "JCSERVER". A list of monitored entities is displayed, with "JCS Server" currently selected. Under the "Monitor" section, there are two checkboxes: "Suspend Dispatch Job With Alert" and "Resource Monitor". At the bottom right, there are two buttons: "Reset" and "Save".

Server Monitor

- Admin UI -> System(系統設置) -> Server Monitor(伺服器監控設定)
 - 可依照各伺服器分別設定。

Server Monitor

Monitor Notification

Search For Name

JCS Server

LOCAL_AGENT

Monitor

JCS Server

Suspend Dispatch Job With Alert

Resource Monitor

Reset Save

預設未勾選(代表未啟用)

Server Monitor

Monitor Notification

Search For Name

JCS Server

LOCAL_AGENT

Monitor

JCS Agent:LOCAL_AGENT

Process Monitor

Resource Monitor

Reset Save

預設未勾選(代表未啟用)

Server Monitor

- 可選擇針對 JCS Server 及個別 JCS Agent 設定 CPU、Memory、Disk 的監控值。

Server Monitor

Monitor Notification

Search For Name
JCSServer
LOCAL_AGENT

Monitor

JCS Server

Suspend Dispatch Job With Alert

Resource Monitor CPU: 80 % Memory: 80 % Disk

Alert	File System	MB	Add
<input type="checkbox"/>		200	Delete

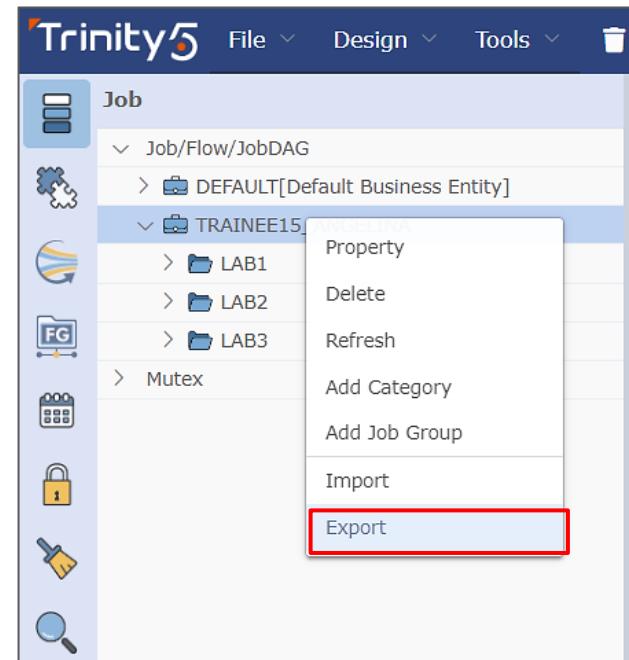
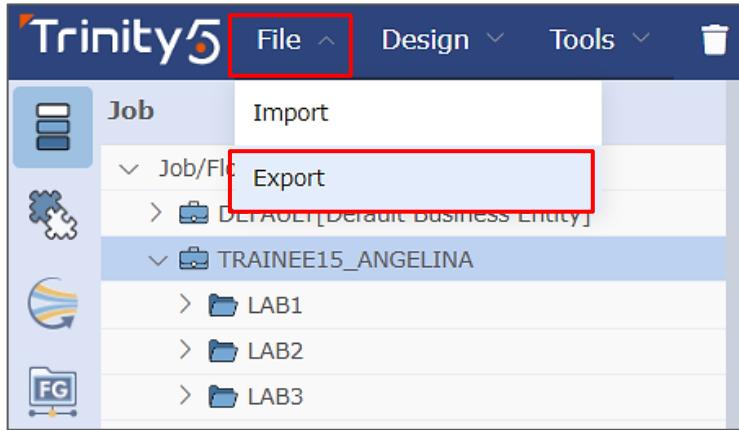
Reset Save

The screenshot shows the 'Monitor' tab selected in the top navigation bar. On the left, there's a search bar and a list of monitored entities: 'JCSServer' and 'LOCAL_AGENT'. The main area is titled 'Monitor' and 'JCS Server'. It includes a checkbox for suspending dispatch jobs with alerts. Below that, there are checkboxes for Resource Monitor and three performance metrics: CPU (80%), Memory (80%), and Disk. A red box highlights a table for setting file system alerts. The table has columns for 'Alert' (checkbox), 'File System' (empty input field), and 'MB' (input field set to 200). It includes 'Add' and 'Delete' buttons. At the bottom are 'Reset' and 'Save' buttons.

備份

備份 - 定義檔備份

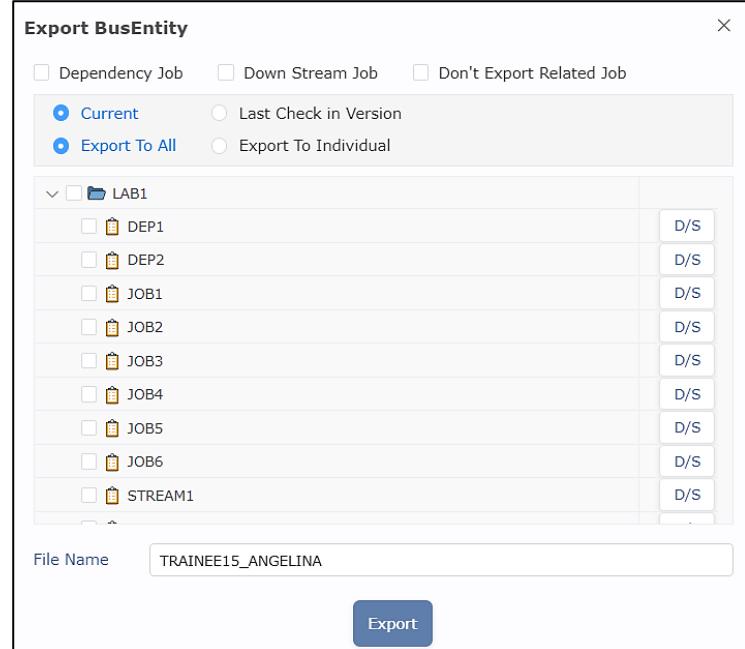
- 透過備份功能(Export/Import) , 可以輕鬆將 Trinity 上所有的設計完整保留，同時利用此方式，也能輕易的完成程式上版。
- 分為 Job/Flow 的備份及 Resource 的備份。
- Job/Flow 的備份
 - 於 JFDesigner 樹狀視圖區中點選目標 Job 、 Category 、 BusEntity 再以滑鼠右鍵開啟選單並點選” Export ”，或於工具列” File ” 選單中點選” Export ” 進行。



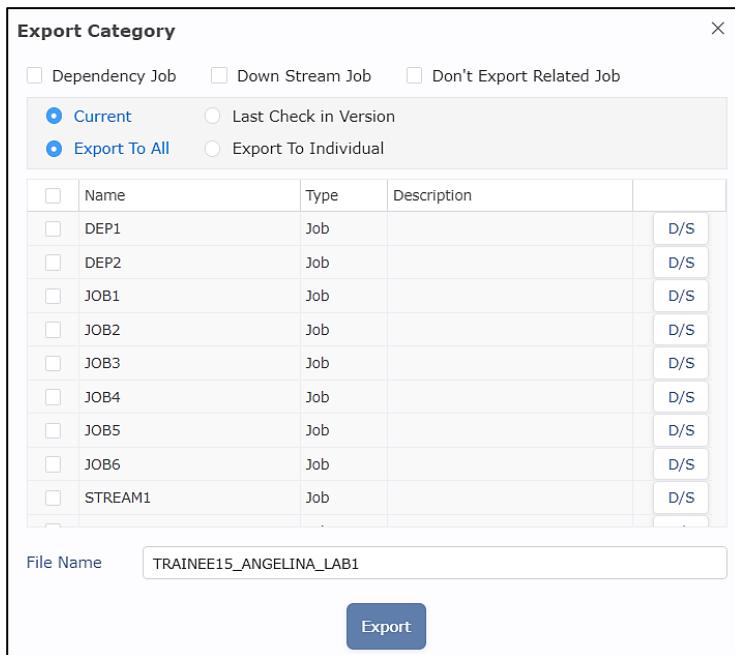
Export Job/Flow

- 承上頁，依據備份目標的作業階層，開啟不同備份畫面。
- 設定完畢後按下” Export ”，產生匯出檔。

Export BusEntity 視窗



Export Category 視窗



Export Job 視窗

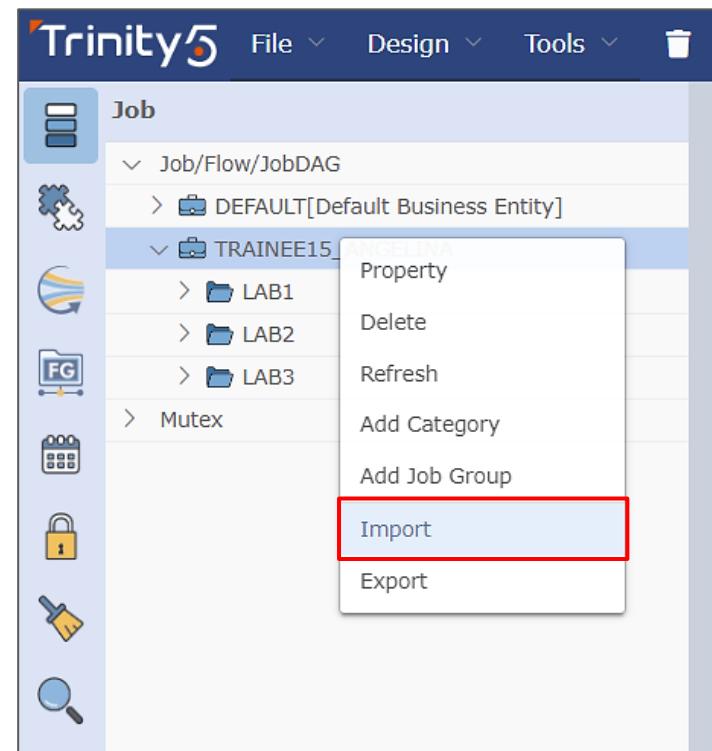
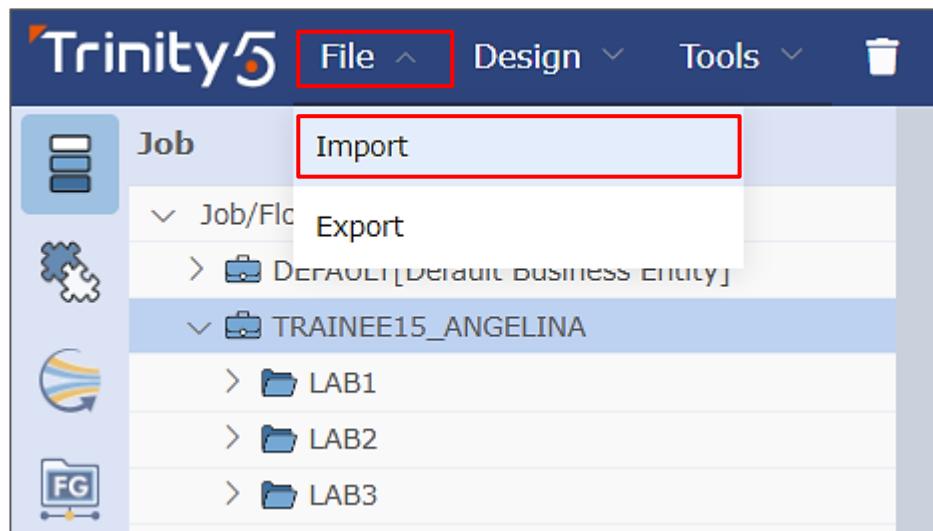


Export Job/Flow 選項功能說明

- 選項功能說明
 - Dependency Job：勾選則會匯出 Job Dependency 設定及其相關的 Job。
 - Down Stream Job：勾選則會匯出 Job Stream 設定及其相關的 Job。
 - Don't Export Related Job：勾選則不會匯出與自身 Dependency/Job Stream 相關的 Job。
 - Current：依照當時設計的 Job 作匯出。
 - Lask check in version：依照 Job 最新版的 check in 內容匯出。
 - Export to all：會將所有勾選的 Job 壓縮成一個 gz 格式檔案。
 - Export to individual：會將每個勾選的 Job 分別壓縮成獨立的 gz 格式檔案。
 - 「D/S」按鈕：可檢視該筆 Job 的 Dependency/Job Stream 關係。
 - 如欲將 Category 所開啟的頁面中所有 Job 一次全選，可點擊標題欄位當中第一格(空白格)，則有全選效果。
 - Directory path：指定匯出檔的放置路徑，可自行輸入路徑或點選「...」路徑選擇按鈕。
 - File Name：可自行輸入檔名或使用預設檔名(副檔名需為 .gz)

Import Job/Flow

- 取得匯出檔之後，再匯入 (Import)至目標
 - 於Web JF Designer 樹狀視圖區中點選欲匯入 Job 的 Business Entity 或 Category，再以滑鼠右鍵開啟選單並點選” Import”，或於工具列” File” 選單中點選” Import” 進行。



Import Job/Flow

- 開啟 Import 視窗後，於“File path”選取匯出檔，即會讀出匯出檔內容顯示於視窗當中。

Import

Import Target	TRAINEE15_ANGELINA::LAB2					
File Path	TRAINEE15_ANGELINA_LAB1.gz					
Online Date Time	<input type="checkbox"/> 2023-12-18 15:06:00					
Options	<input checked="" type="checkbox"/> Resource exist before they can import Job <input type="checkbox"/> Overwrite Dependency <input type="checkbox"/> Overwrite Stream <input type="checkbox"/> Only Depend/Stream <input checked="" type="checkbox"/> Use Original UUID					
Mode	BusEntity	Category	Name	Type	Resource Option	File Nam
Add	TRAINEE15_ANGE...	LAB2	FLOW1	Flow	mapmode:name	11-TR...
Add	TRAINEE15_ANGE...	LAB2	DEP1	Job		09-TR...
Add	TRAINEE15_ANGE...	LAB2	DEP2	Job		09-TR...
Add	TRAINEE15_ANGE...	LAB2	JOB1	Job		09-TR...
Add	TRAINEE15_ANGE...	LAB2	JOB2	Job		09-TR...
Add	TRAINEE15_ANGE...	LAB2	JOB3	Job		09-TR...
Add	TRAINEE15_ANGE...	LAB2	JOB4	Job		09-TR...
Add	TRAINEE15_ANGE...	LAB2	JOB5	Job		09-TR...
Add	TRAINEE15_ANGE...	LAB2	JOB6	Job		09-TR...
Add	TRAINEE15_ANGE...	LAB2	STREAM1	Job		09-TR...

Import

Import Job/Flow 選項功能說明

- 選項功能說明
 - Online Date Time：若勾選則此批匯入的作業其「Online Date Time」設定值將會一併調整。
 - Resource exist before they can import job：勾選可於匯入前檢查目的端是否具備來源端所需使用之相同名稱的 Resource。
 - Overwrite Dependency：勾選會以來源端 Job 的 Dependency 設定進行異動。
 - Overwrite Stream：勾選會以來源端 Job 的 Job Stream 設定進行異動。
 - Only Depend/Stream：勾選表示僅匯入Dependency 及 Job Stream 相關項目。
 - Use Original UUID：勾選表示匯入的作業會以來源端所匯出之 UUID 建立在目的端當中。若來源端所匯出之 UUID 已存在於目的端，則即使來源端與目的端的 Job Name 並不同，結果仍會將目的端該 UUID 的 Job 進行 Job 異動。

Import Job/Flow 選項功能說明

- 表格中的細項：
 - Mode：「Add」代表目的端不存在此項；「Update」代表目的端存在此項但與來源端內容不同；若未顯示則代表目的端存在此項目且與來源端內容一致。
 - Resource Option：此欄供 Import Resource 時使用。Import Job 時不須理會此欄。
 - File Name：顯示來源端的檔案項目。
 - Export Date Time：匯出檔案時間。
 - Difference：Import 完畢後才會呈現，若顯示「Diff」代表 Import 結果有異動目的地端內容；若顯示「OK」代表目的端內容無異動。

Export Resource

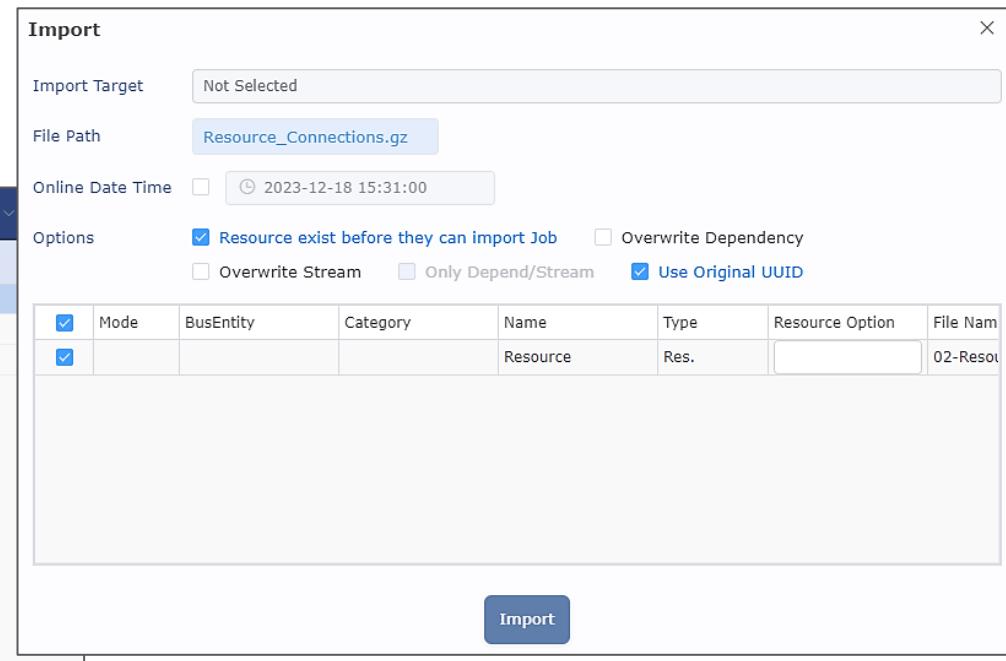
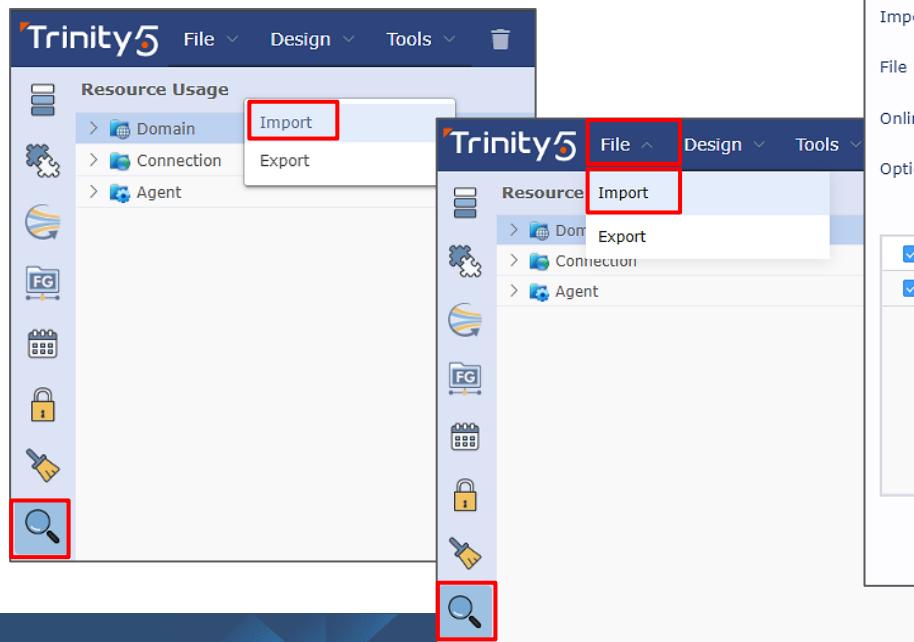
- Resource 的備份

- 於 Web JF Designer 功能視圖中點選“Resource Usage”圖示進入頁面，再以滑鼠右鍵開啟選單並點選“Export”，或於工具列“File”選單中點選“Export”進行。
- 預設只有 Root 及 Administrator 角色的使用者才可以使用此功能，可授權其他使用者或角色使用。
- 開啟 Export 視窗後，選取各項目再點擊“OK”，開啟該項目操作視窗。



Import Resource

- 取得匯出檔之後，再匯入 (Import)至目標
 - 於 Web JF Designer功能視圖中點選” Resource Usage” 圖示進入頁面，再以滑鼠右鍵開啟選單並點選” Import” ，或於工具列” File” 選單中點選” Import” 進行。
 - 預設只有 Root 及 Administrator 角色的使用者才可以使用此功能，可授權其他使用者或角色使用。
 - 開啟 Import 視窗後，於” File path” 選取匯出檔，即會讀出匯出檔內容顯示於視窗當中。



Import Resource 參數

- 在進行 Resource Import 時，可搭配下列參數使用：
 - o (overwrite) : 會把原本存在的一律覆蓋
 - a (add) : 只會新增，如果已存在則不會新增
 - n (no change) : 不做任何變更
 - u (update and insert) : 已存在的會更新，不存在的會新增，不會刪除原本既有的
- 使用範例：“Import項目:參數”
 - conn:o
 - fq:u

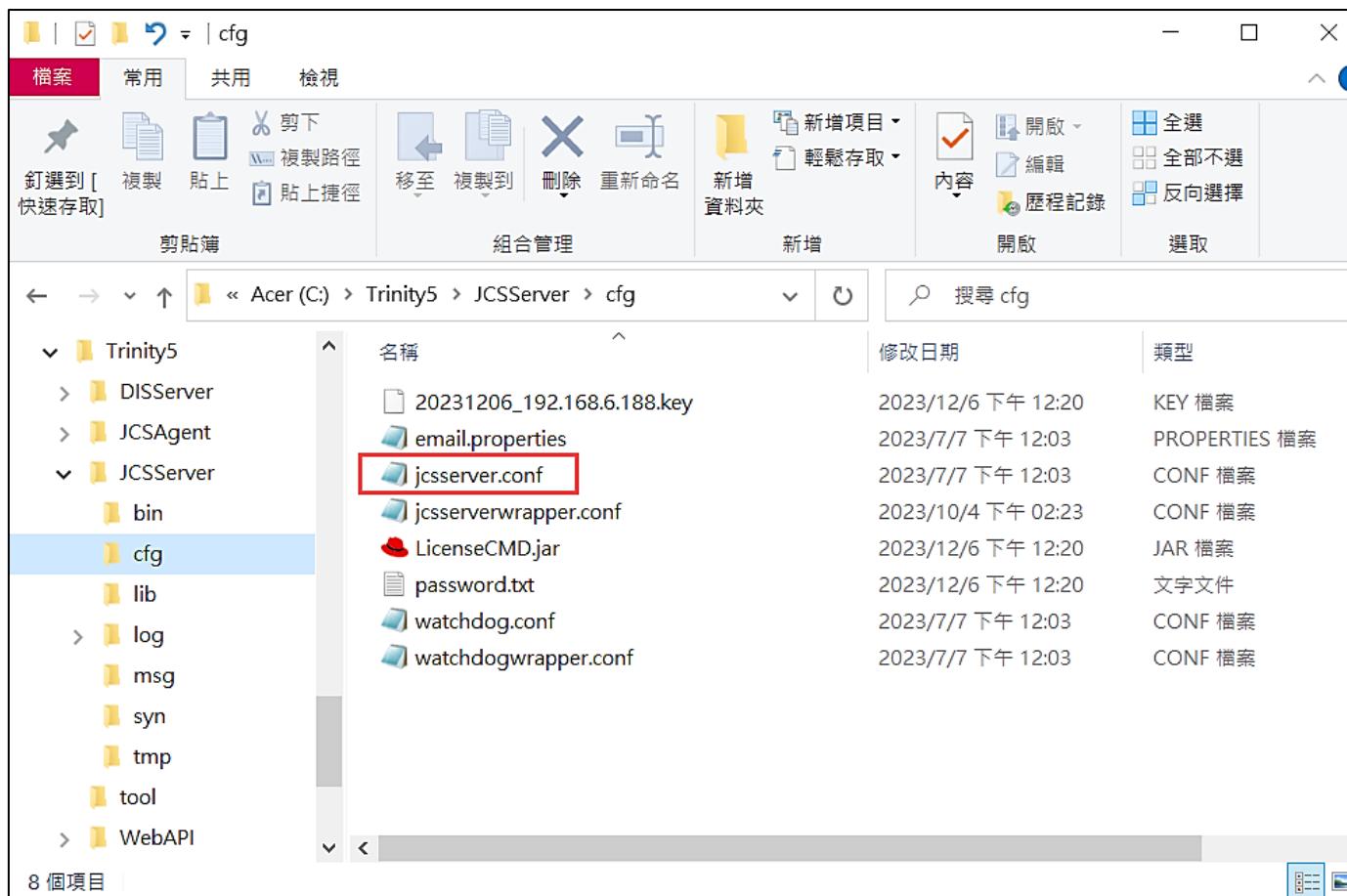
Import 項目	設定使用名稱	Import 項目	設定使用名稱
alias	al	agent	ag
business entity variable	bev	mutex	mu
connection	Conn	permission	pm
domain	dm	role	ro
exclude frequency	exfq	user	us
frequency	fq	user group	group(gp)
filesource	fs	Import Job	all

備份 4.1版介紹

- 備份 4.1版介紹請參閱本講義“附錄10”說明。

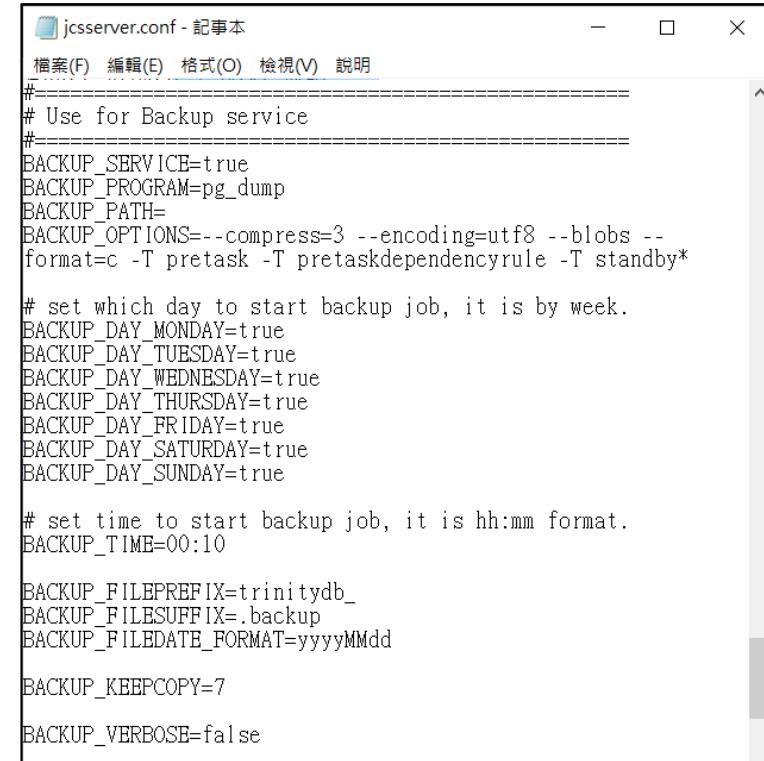
備份 - 系統自動備份

- 經由簡單的設定，即可利用系統自動備份功能，定時將 Repository 中所有設定及執行記錄進行備份
 - 開啟安裝目錄下的 jcsserver.conf



備份 - 系統自動備份

- **Backup_Service**
 - True: 開啟備份功能
 - false: 關閉備份功能
- **Backup_Program**
 - 此備份是利用PostgreSQL中的pg_dump指令來進行備份，故需指定PostgreSQL的安裝路徑
- **Backup_Path**
 - 備份檔的存放路徑
- **Backup_Day**
 - 設定那幾天要進行備份
- **Backup_Time**
 - 設定備份執行時間，格式為hh:mm 24小時
- **Backup_File**
 - 備份檔名的設定
- **Backup_Keepcopy**
 - 備份檔保留天數
- **Backup_VERBOSE**
 - 執行備份時是否要顯示詳細的文字結果輸出



```
jcsserver.conf - 記事本
檔案(F) 編輯(E) 格式(O) 檢視(V) 說明
=====
# Use for Backup service
=====
BACKUP_SERVICE=true
BACKUP_PROGRAM=pg_dump
BACKUP_PATH=
BACKUP_OPTIONS="--compress=3 --encoding=utf8 --blobs --format=c -T pretask -T pretaskdependencyrule -T standby*
# set which day to start backup job, it is by week.
BACKUP_DAY_MONDAY=true
BACKUP_DAY_TUESDAY=true
BACKUP_DAY_WEDNESDAY=true
BACKUP_DAY_THURSDAY=true
BACKUP_DAY_FRIDAY=true
BACKUP_DAY_SATURDAY=true
BACKUP_DAY_SUNDAY=true
# set time to start backup job, it is hh:mm format.
BACKUP_TIME=00:10
BACKUP_FILEPREFIX=trinitydb_
BACKUP_FILESUFFIX=.backup
BACKUPFILEDATE_FORMAT=yyyyMMdd
BACKUP_KEEPCOPY=7
BACKUP_VERBOSE=false
```

備份 - 系統自動備份

- 在啟動 JCS Server 服務之後，會在JCS_SERVER_yyyyMMdd.log 的日誌檔中顯示備份服務啟動訊息：

```
com.netpro.jcs.server.backup.BackupService [INFO] 2012/06/12 14:37:26 : Load backup properties...
com.netpro.jcs.server.backup.BackupService [INFO] 2012/06/12 14:37:26 : Backup file storage path=/Users/jet/ tmp /trinity backup
com.netpro.jcs.server.backup.BackupService [INFO] 2012/06/12 14:37:26 : Backup file keep copy=2
com.netpro.jcs.server.backup.BackupService [INFO] 2012/06/12 14:37:26 : Backup file prefix=trinitydb_
com.netpro.jcs.server.backup.BackupService [INFO] 2012/06/12 14:37:26 : Backup file suffix=.backup
com.netpro.jcs.server.backup.BackupService [INFO] 2012/06/12 14:37:26 : Backup file date format=yyMMdd
com.netpro.jcs.server.backup.BackupService [INFO] 2012/06/12 14:37:26 : JCSServer Backup service started.
```

```
com.netpro.jcs.server.backup.BackupService [INFO] 2012/06/12 14:40:06 : Start to do Trinity DB backup.
com.netpro.jcs.server.backup.BackupService [INFO] 2012/06/12 14:40:06 : /Library/PostgreSQL/8.3/bin/pg_dump --ignore-version --compress=3 --encoding=utf8 --blobs --host=localhost --port=5432 --username=trinity --file=/Users/jet/ tmp /trinity backup/trinitydb_120612.backup trinity36
com.netpro.jcs.server.backup.BackupService [INFO] 2012/06/12 14:40:07 : Backup command success.
```

其他設定

Admin UI 功能權限 - 設定

- Admin UI 功能權限透過 Role 做授權
 - Admin UI -> Account(帳號) -> Role(角色) -> Permission(權限)
 - 從主畫面點擊該筆資料左方圖示、展開功能選項並點擊“Permission(權限)”，可開啟設定視窗。

The screenshot illustrates the Admin UI interface for managing roles and permissions.

Main Screen (Left): Shows a list of roles. A specific role, "SAMPLE", is selected, indicated by a blue background. A context menu is open for this role, with the "Permission" option highlighted by a red box.

Role - Permission Dialog (Right): This modal window lists various system functions and their permission status for the selected role.

Function Name	View	Add	Delete	Edit
Alias Reference	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Connection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Domain	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Entity Variable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extension Rule	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
File Source	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Frequency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
JCS Agent	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

A yellow box highlights the "View" column header, and another yellow box highlights the "Add" column header. A red box highlights the "Permission" option in the context menu on the main screen.

Admin UI 功能權限 - 效果

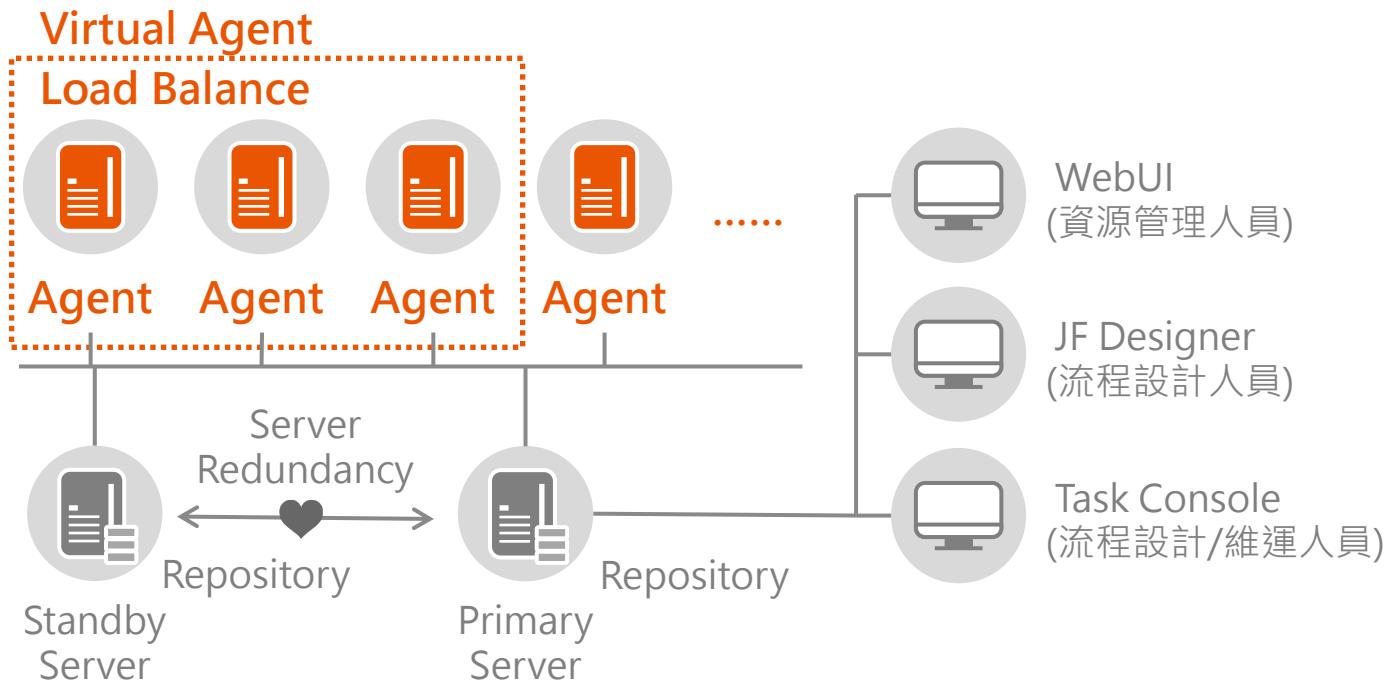
- 授權前 vs. 授權後

This screenshot shows the Trinity Admin UI interface. The left sidebar has a dark blue background with white icons and labels: Account, User, Role, User Group, Resource, Alias Reference, Domain (which is highlighted with an orange bar), and Connection. The main content area has a light gray header with a user icon labeled 'trainee15', the language 'English', and a refresh button. Below the header is a search bar with placeholder 'Search For Name' and a magnifying glass icon. The main table has columns for 'Name' (sorted by ascending order), 'Description', and 'Update Time'. A message at the bottom of the table says 'You do not have privileges for this operation.' A yellow rectangular box highlights this message, and the text '授權前' (Before Authorization) is overlaid on it.

This screenshot shows the same Trinity Admin UI interface as the previous one, but with different data in the table. The left sidebar is identical. The main content area now displays a table with two rows of data. The first row has a 'Name' column value of 'Global', a 'Description' column value of 'Global Domain', and an 'Update Time' column value of '2023-03-25 14:38:57'. The second row has a 'Name' column value of 'Default', a 'Description' column value of 'Default Domain', and an 'Update Time' column value of '2023-03-25 14:38:57'. A yellow rectangular box highlights the table, and the text '授權後' (After Authorization) is overlaid on it.

JCS Agent

- 作業由 JCS Agent 來執行。
- Virtual Agent 則是用來將多個 JCS Agent 定義為一個虛擬 JCS Agent。



JCS Agent - 新增

- Admin UI -> Resource(資源) -> JCS Agent
 - 點擊畫面右上方新增物件的圖示可開啟對話視窗。

The screenshot shows the Trinity5 Admin UI interface. On the left, there is a sidebar with the following navigation items:

- Account
- User
- Role
- User Group
- Resource
 - Alias Reference
 - Domain
 - Connection
 - File Source
 - JCS Agent** (highlighted)
 - Virtual Agent
- Schedule

The main content area displays a list of JCS Agents under the heading "JCS Agent". A search bar and a "New" button are visible at the top right of this list. A yellow box highlights the "New" button.

A modal dialog box titled "JCS Agent - Add Agent" is open in the foreground. It contains the following fields:

Field	Value	Notes
Name	(empty)	<input type="checkbox"/> Activate
Description	(empty)	
*OS Type	Linux	<input type="checkbox"/> Compress Transfer
OS Name	(empty)	*Dead Period: 10 Minutes
Encoding	(empty)	*Monitor Period: 10 Seconds
*Host	(empty)	*Weight of CPU: 2
*Port	(empty)	*Weight of Memory: 1
*Maximum Job	5	Test Connection button

At the bottom of the dialog are three buttons: "Reset", "Cancel", and "Save".

JCS Agent - 編輯

- Admin UI -> Resource(資源) -> JCS Agent
 - 點擊該筆資料當中標示底線的值，或點擊該筆資料左方圖示、展開功能選項並點擊“Edit(編輯)”，可開啟該筆資料的“Edit(編輯)”視窗。

JCS Agent

Search For Name

Name	Activate	Host	Port
LOCAL_AGENT	✓	192.168.17.112	18

Page Size 10 1

JCS Agent

Search For Name

Name	Activate	Host	Port
LOCAL_AGENT	✓	192.168.17.112	18

☰

Edit

Copy

Permission

Delete

← 1

JCS Agent - 複製

- Admin UI -> Resource(資源) -> JCS Agent
 - 點擊該筆資料左方圖示、展開功能選項並點擊“Copy(複製)”進行複製。

The screenshot shows the JCS Agent - Copy dialog box. On the left, a sidebar lists agents: LOCAL_AGENT (selected and highlighted with a red box), Edit, Copy (highlighted with a red box), Permission, and Delete. The main area contains the following fields:

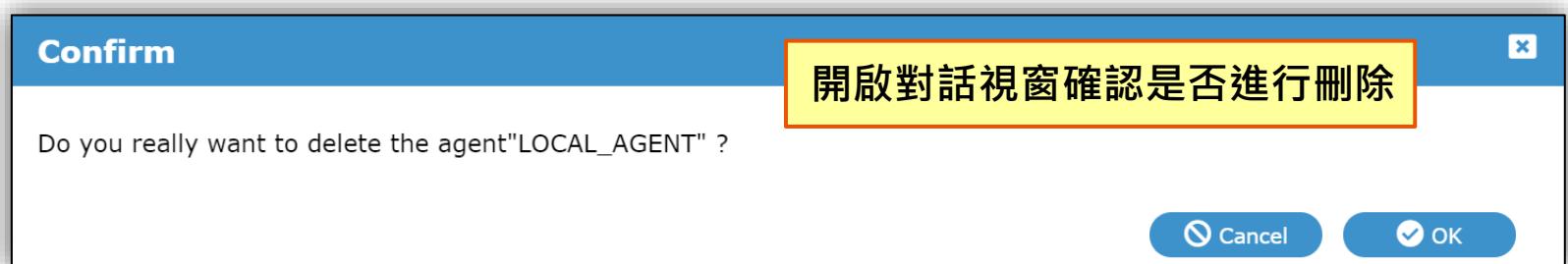
- Copy Agent:** LOCAL_AGENT
- *Name:** (input field)
- Activate:** (checkbox checked)
- Description:** (input field)
- *OS Type:** Linux (dropdown menu)
- Compress Transfer:** (checkbox)
- OS Name:** (input field)
- *Dead Period:** 10 Minutes (dropdown menu)
- Encoding:** (input field)
- *Monitor Period:** 10 Seconds (dropdown menu)
- *Host:** 192.168.17.112
- *Port:** 1888
- *Weight of Memory:** 1
- *Maximum Job:** 10 (dropdown menu)
- Test Connection:** (button)

A yellow callout box highlights the "Copy" option in the sidebar and the "Copy" button in the dialog, with the text: "可編輯視窗中的設定內容後再複製".

JCS Agent - 刪除

- Admin UI -> Resource(資源) -> JCS Agent
 - 點擊該筆資料左方圖示、展開功能選項並點擊“Delete(刪除)”進行刪除。

The screenshot shows a table of JCS Agents. One row is selected, showing the name 'LOCAL_AGENT', status 'Activate' (green checkmark), host '192.168.17.112', and port '18012'. A context menu is open over this row, listing 'Edit', 'Copy', 'Permission', and 'Delete'. The 'Delete' option is highlighted with a red box.



JCS Agent - 權限

- Admin UI -> Resource(資源) -> JCS Agent
 - 點擊該筆資料左方圖示、展開功能選項並點擊“Permission(權限)”進行管理。
 - 預設呈現既有的權限設定內容。設定內容分為「Account(帳號)」頁面與「Role(角色)」頁面，可分別設定。
 - 可針對既有的設定內容直接勾選或取消勾選來進行修改。
 - 按下「Delete(刪除)」可刪除畫面上該筆資料。

The screenshot shows the JCS Agent - Permission dialog box. At the top, it displays the Name: LOCAL_AGENT. The main area has two tabs: Account and Role. Under the Account tab, there is a table with one row for trainee15 (trainee15). The columns are User Name(User ID), View, Use, Delete, Edit, and Grant. Each column contains a checked checkbox. At the bottom of the dialog box are three buttons: Reset, Cancel, and Save.

User Name(User ID)	View	Use	Delete	Edit	Grant
trainee15 (trainee15)	<input checked="" type="checkbox"/>				

Virtual Agent - 新增

- Admin UI -> Resource(資源) -> Virtual Agent
 - 點擊畫面右上方新增物件的圖示可開啟對話視窗。

The screenshot shows the Trinity5 Admin UI interface. On the left, there is a sidebar with various navigation options: Account, User, Role, User Group, Resource (selected), Alias Reference, Domain, Connection, File Source, JCS Agent, Virtual Agent (selected), Schedule, Working Calendar, and Frequency. The main area displays a list of Virtual Agents with columns for Name, Activate, Description, and Update Time. A red box highlights the '+' icon in the top right corner of the list area. A yellow box highlights the '新增' (Add) button in the top right corner of the central dialog window. The dialog window itself is titled 'Virtual Agent - Add Virtual Agent'. It contains fields for Name, Description, Maximum Job (set to 5), and two radio buttons for Load Balance and Dedicated Order. Below this is a table with columns Seq, JCS Agent, Activate, and Description. The first row shows Seq 1, JCS Agent LOCAL_AGENT, Activate (unchecked), and Description (empty). A cursor is hovering over the JCS Agent dropdown menu. At the bottom of the dialog are buttons for Add, Delete, Reset, Cancel, and Save.

- Load Balance : 依照 JCS Agent 當下資源量指派作業
- Dedicated Order : 預設將作業指派給序號1，若序號1連線異常，則改指派給序號2

Data Quality

Big Data
Management

Job Control
System

Metadata
Management

Trinity

Trinity Advance Training

實作練習

實作練習(一) 日批次轉檔作業

- 請建立一個作業(Job_A)，執行批次收檔
- 執行時間為每週一~五，自早上 9:00 ~ 12:00 之間皆可進行收檔
- 當 Job_A 執行成功，則接續執行 Job_B
- 若 Job_A 執行失敗，則執行 Job_C
- 批次收檔執行後，若未收齊當日檔案或者作業執行失敗，則發 MAIL 通知負責人
- 前次轉檔作業若未執行成功，則本次轉檔作業不可執行

實作練習(一) 日批次轉檔作業 – 說明

- 執行時間為每週一~五，自早上9:00 ~ 12:00之間皆可進行收檔
 - 執行時間的部分
 - 可設定 Frequency : Date 設定 週一、週二、週三、週四、週五，Time 選擇 Select Time 09:00
也可設定 Job Execution Time : 配合使用 Working Calendar 且 Working Calendar 選取每個週一~五
 - 等檔的部分
 - 可使用 File Source 並設定 Timeout 為 180 分鐘
 - 也可使用 Job 的 Retry Option，勾選 Retry After Job Failed，設定 Retry Interval 為 30 分鐘 + 設定 Max Retry Time 為 6 次。
- 當 Job_A 執行成功則接續執行 Job_B，若 Job_A 執行失敗則執行 Job_C
 - 可建立 Flow 達到目的
- 批次收檔執行後，若未收齊當日檔案或者作業執行失敗，則發 MAIL 通知負責人
 - 使用 Notification，Type 選擇 E-mail，Timing 設定 When Task Timeout、When Task Error
- 前次轉檔作業若未執行成功，則本次轉檔作業不執行
 - Job 設定 Bypass Error 為 取消勾選

Q & A

實作練習(二)

- Root 指定小明及小美為 Administrator。小明建立了一個 Business Entity 為 A1。小美建立了一個 Business Entity 為 A2。當小明想要在小美的 A2 底下新增 category 時，需要由誰開放甚麼權限給誰？
- 小明編輯 Job1 編輯到一個段落後，剩下的部份想請同事小美負責設計。小明在作業階層及版本控管方面，需要先做甚麼事，小美才能編輯 Job1？
- Job1 執行資料寫入 K table 的作業，設定排程時間為週一至週五早上 10:00；Job2 則是統計 K table 中資料筆數的作業，設定排程時間為每週五下午 5:00。希望 Job2 執行前，能確保 Job1 在週五是執行成功的，則 Job2 才可執行。請問如何設定？

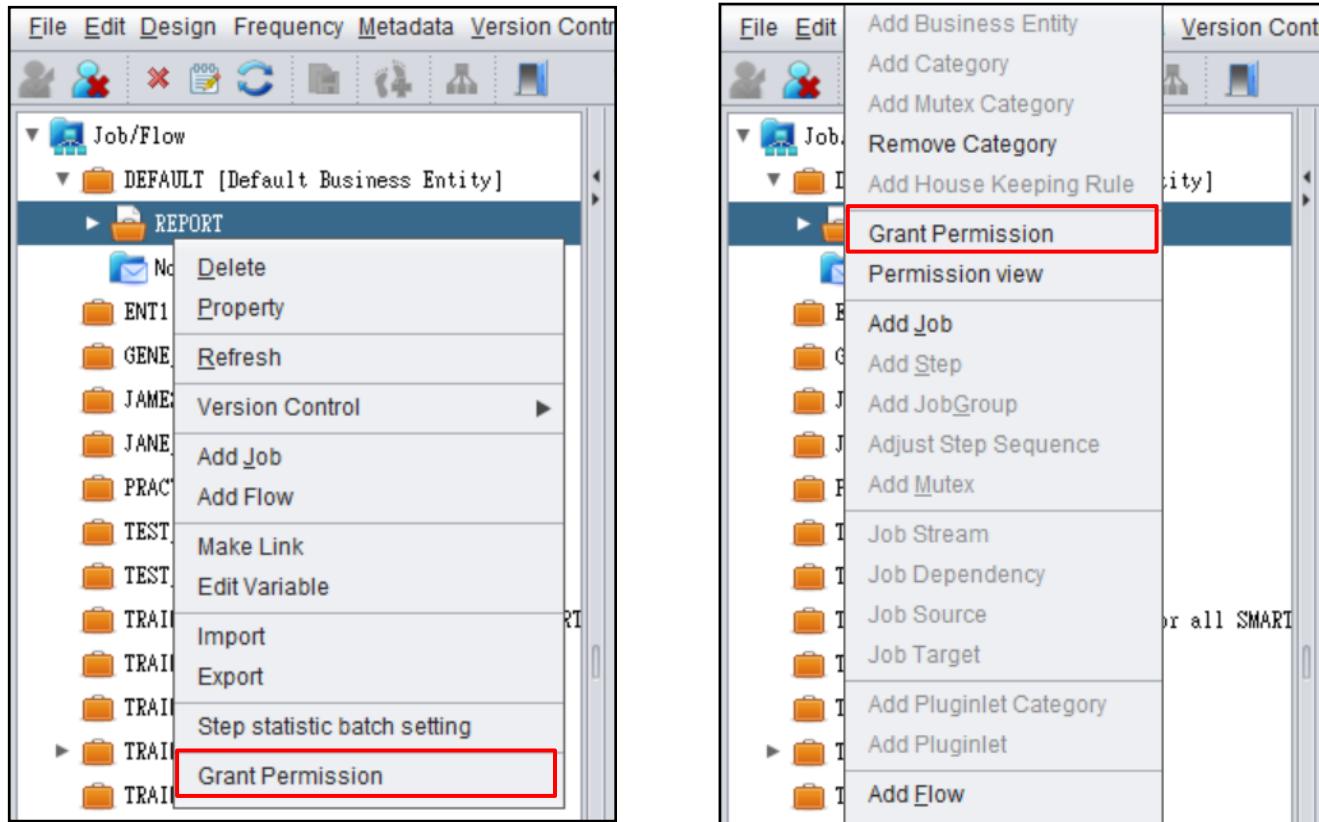
實作練習(二) – 說明

- Root 指定小明及小美為 Administrator。
小明建立了一個 Business Entity 為 A1。小美建立了一個 Business Entity 為 A2。當小明想要在小美的 A2 底下新增 category 時，需要由誰開放甚麼權限給誰？
 - 由小美將 A2 設定 Permission，使小明的帳戶或小明所屬的角色，對 A2 有 Add 的權限。
- 小明編輯 Job1 編輯到一個段落後，剩下的部份想請同事小美負責設計。小明在作業階層及版本控管方面，需要先做甚麼事，小美才能編輯 Job1？
 - 作業階層方面：小明需將 Job1(或 Job1 的父階層) 設定 Permission，使小美具備 Edit 的權限。
 - 版本控管方面：小明需先將 Job1 的 checkout 狀態解除 (對 Job 按右鍵 > Version Control > Release Lock 或 Check in)
PS. 小美也須對 Job1 進行 check out，才可進行編輯。
- Job1 執行資料寫入 K table 的作業，設定排程時間為週一至週五早上 10:00；Job2 則是統計 K table 中資料筆數的作業，設定排程時間為每週五下午 5:00。希望 Job2 執行前，能確保 Job1 在週五是執行成功的，則 Job2 才可執行。請問如何設定？
 - 於 Job2 新增 Dependency 指到 Job1，Dep Rule 設定 $S() \text{ AND } TX() = THIS$

附錄1 – 作業階層權限

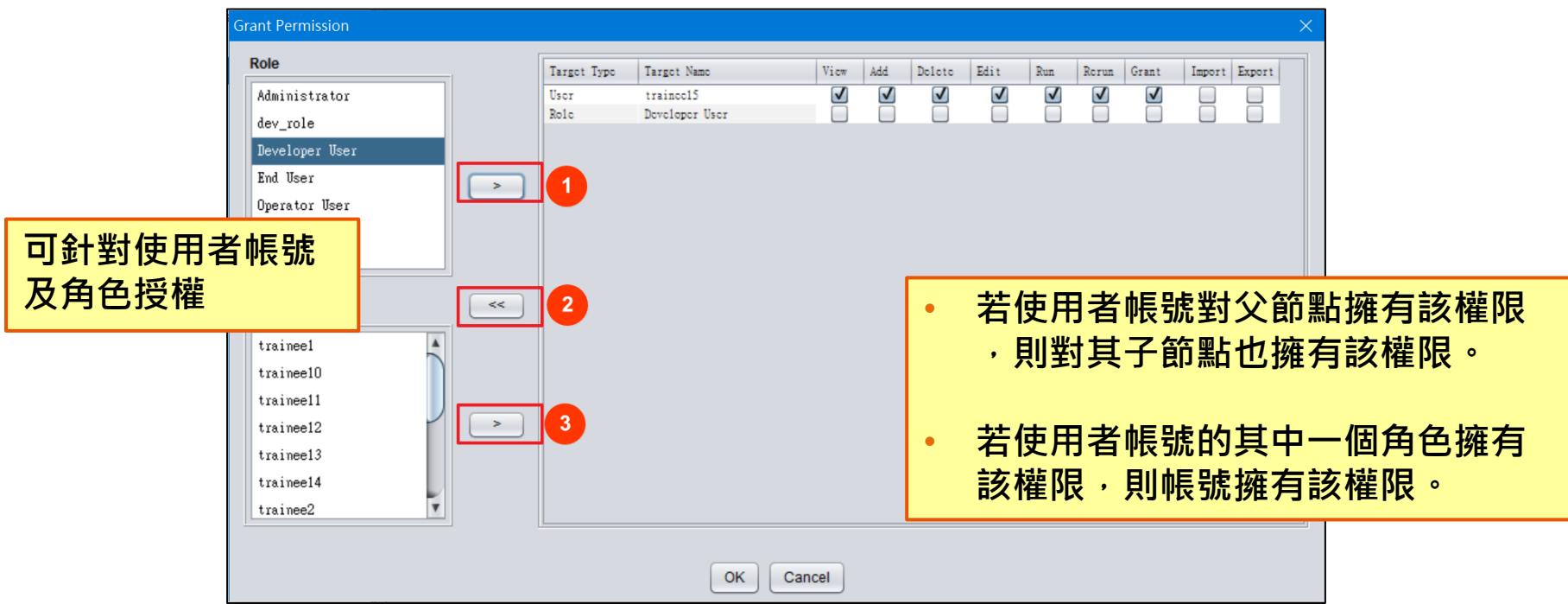
作業階層權限 - 設定

- 於 JF Designer 對 Business Entity、Category 以及 Job 進行授權。
 - 於樹狀視圖區“Job/Flow”項上將目標作業階層以滑鼠右鍵開啟選單並點選“Grant Permission”，再於對話視窗當中進行設定。

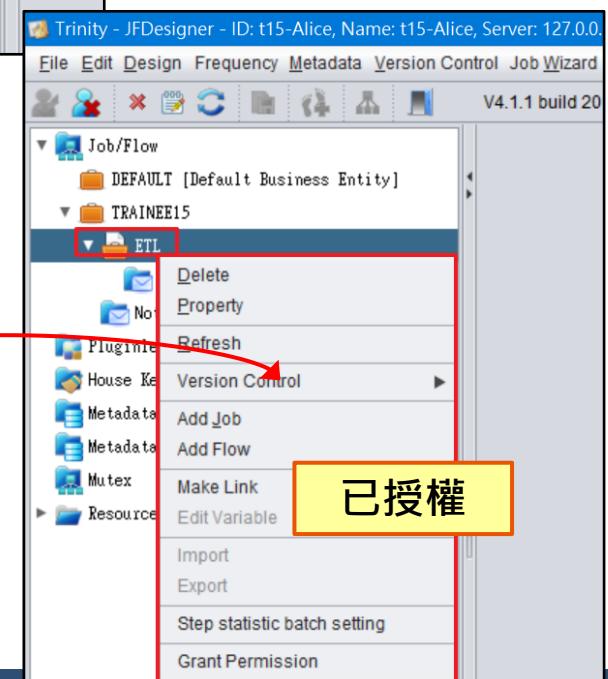
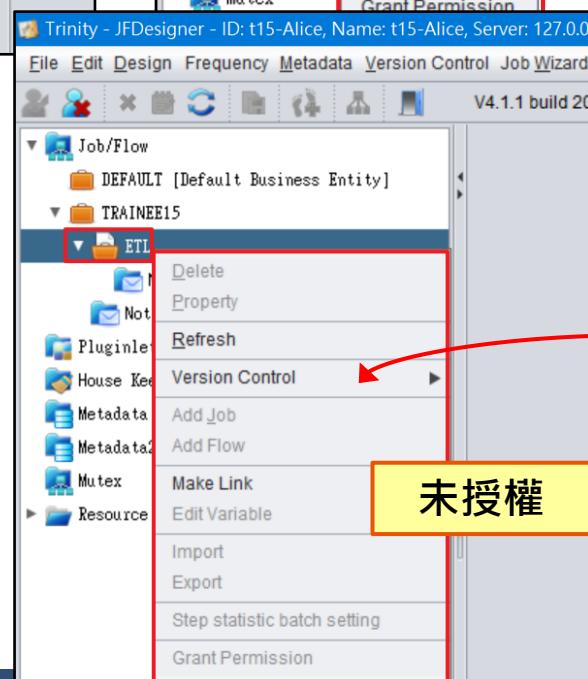
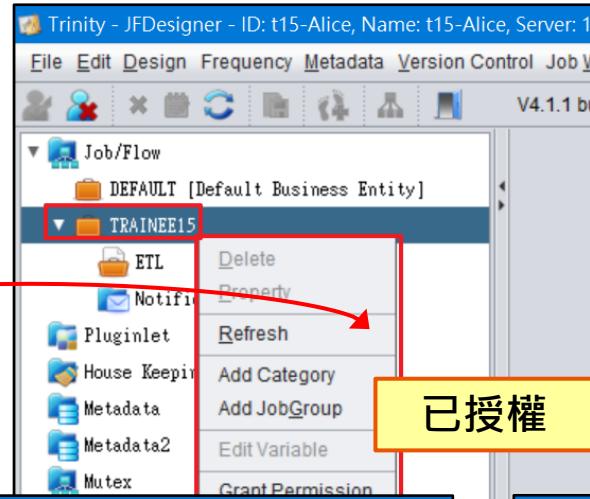
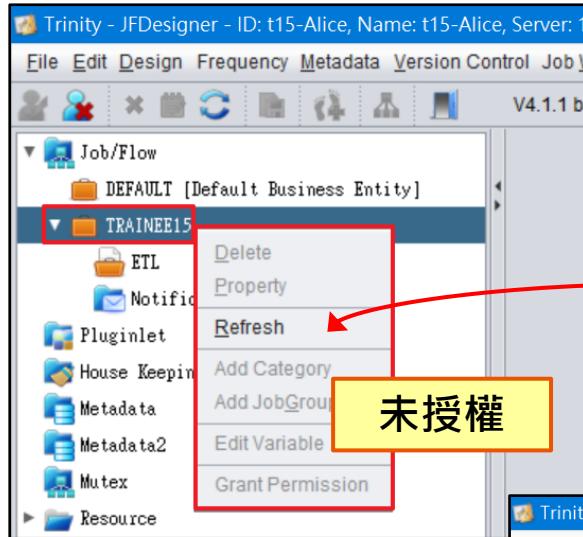


作業階層權限 - 設定

- 按鈕 1：可加入角色到權限設定
- 按鈕 2：可移除現有的權限設定
- 按鈕 3：可加入使用者到權限設定
- 按下“OK”按鈕來將所修改的設定更新至Trinity數據庫中，如果要放棄設定權限的動作話，只要按下“Cancel”按鈕就會關閉此對話視窗而不做任何更新動作。



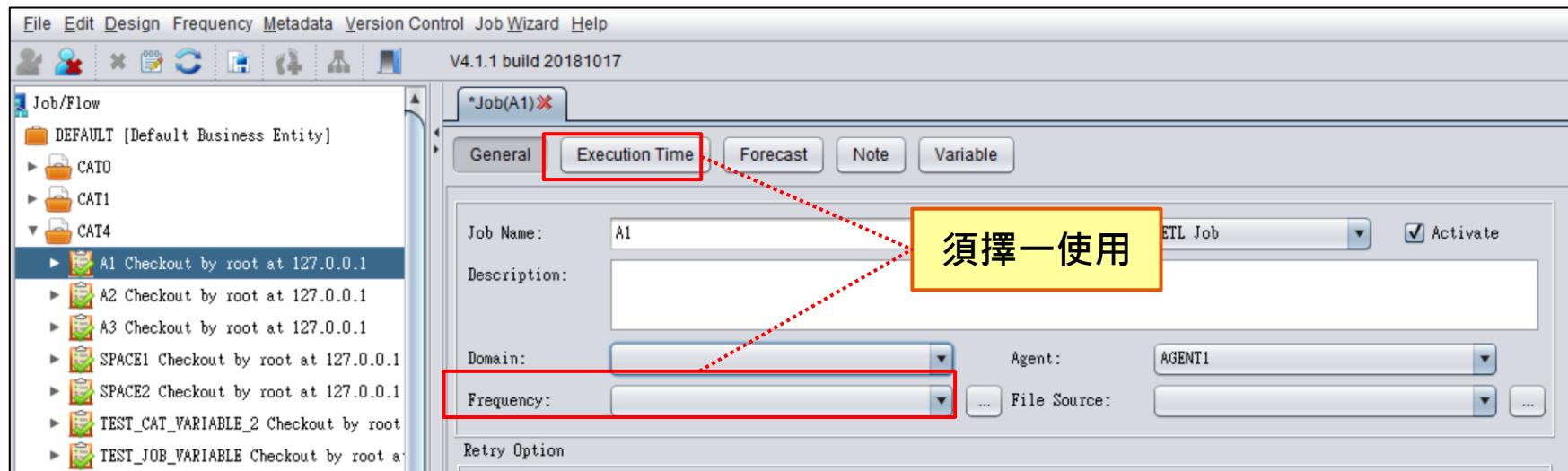
作業階層權限 - 效果



附錄2– Job Execution Time

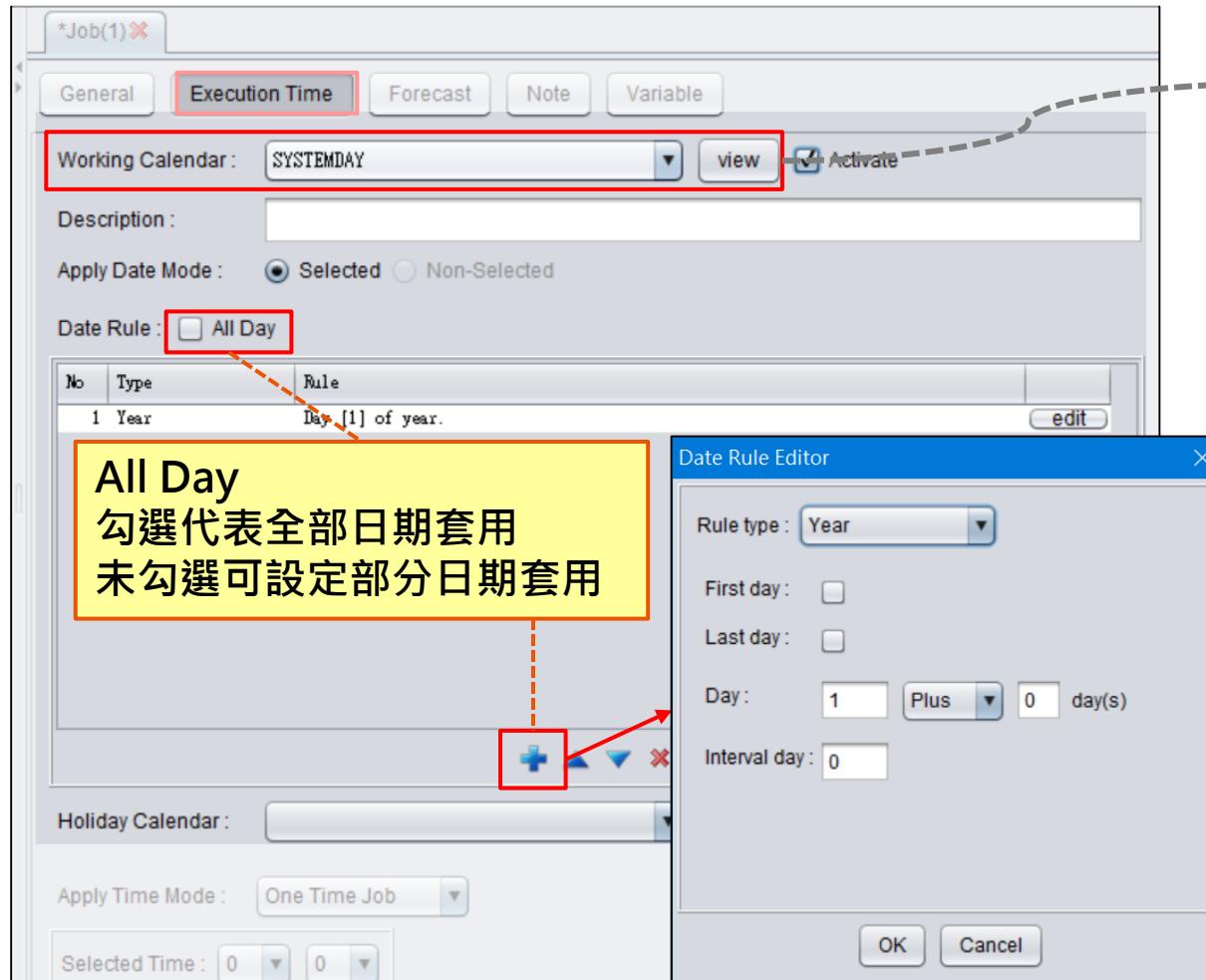
Job Execution Time

- 在作業層級上，可設定單一作業的專用排程，提供較為彈性的設置。
 - 設定位置在 Job 編輯頁面當中的“Execution Time”頁籤。
 - 此方式與 Frequency 須擇一使用。

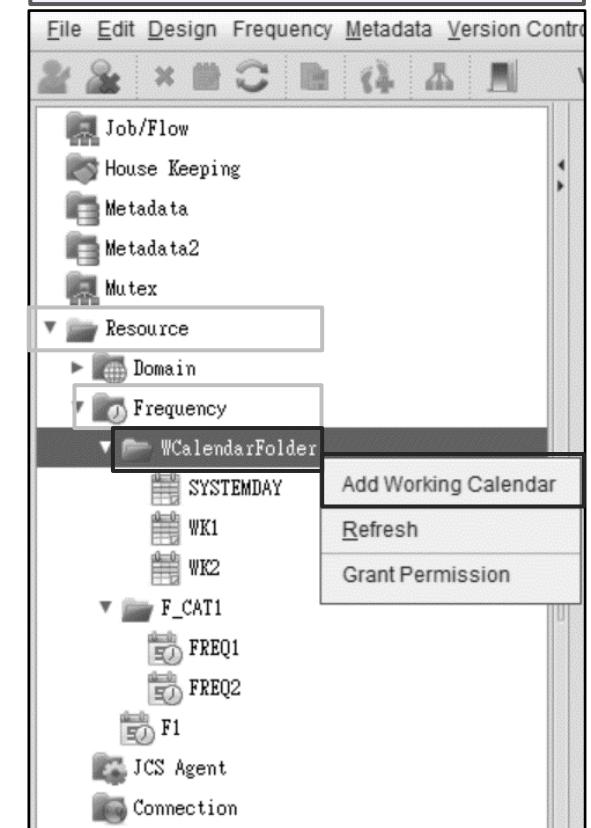


Job 的 Execution Time 頁面介紹

- 執行日期以 Working Calendar 指定。



Working Calendar 需事先定義



All Day
勾選代表全部日期套用
未勾選可設定部分日期套用

Job 的 Execution Time 頁面介紹

- 執行時間有三種模式。

The screenshot shows the 'Execution Time' tab of the Job configuration interface. It includes fields for Working Calendar, Description, Date Rule, and a table for defining execution rules based on date and type (e.g., Year, Month, Day). A red box highlights the 'Apply Time Mode' dropdown in the main panel.

One Time Job

Selected Time : 0 0

指定單一時間

Multiple Time Job

No	Selected Time	Action
1	00:00	edit
2	01:00	edit

指定多個時間

Continuous Job

No	Start Time	End Time	Interval	Action
1	00:00	03:00	30	edit
2	13:00	15:00	10	edit

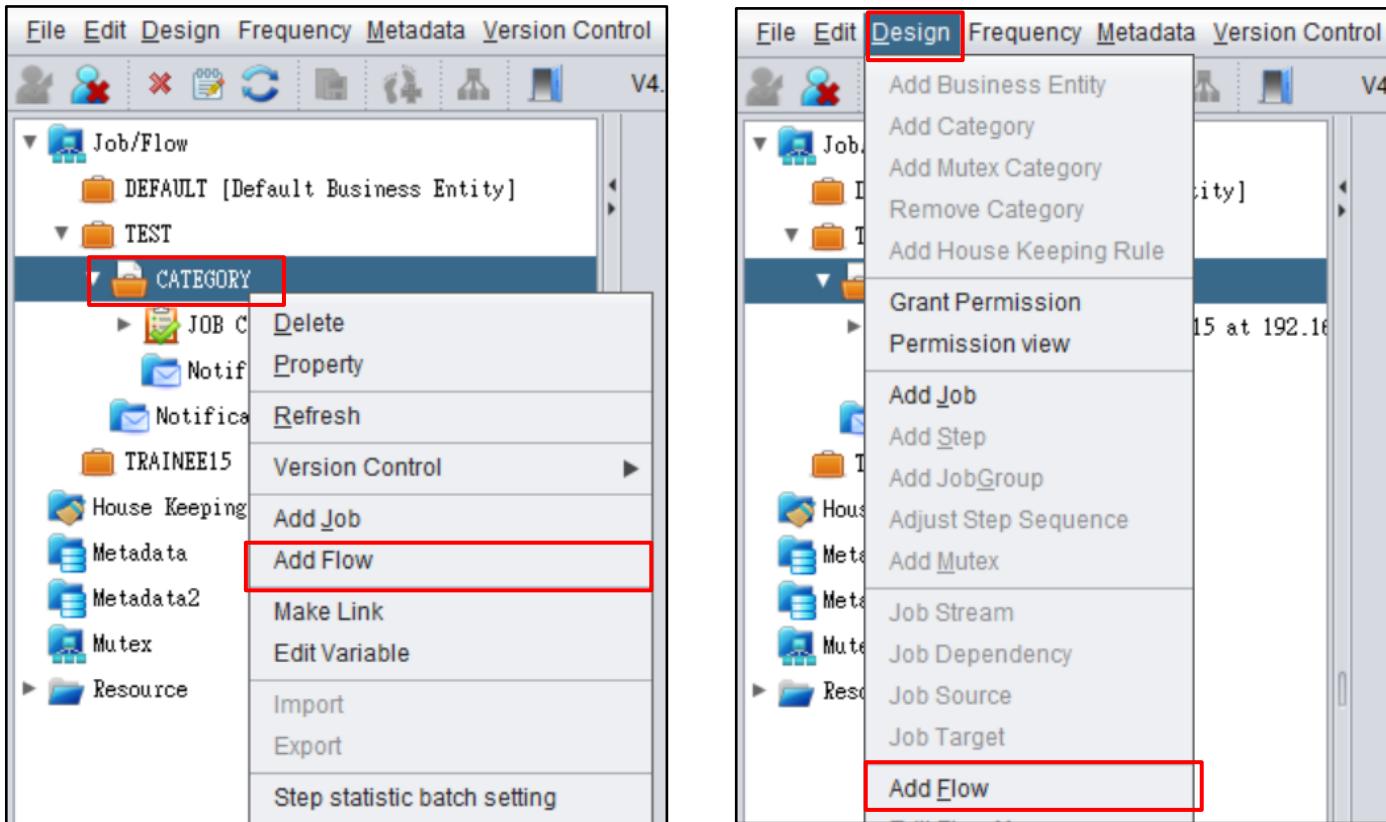
指定多個區間

附錄3– Job Flow

Job Flow - 新增

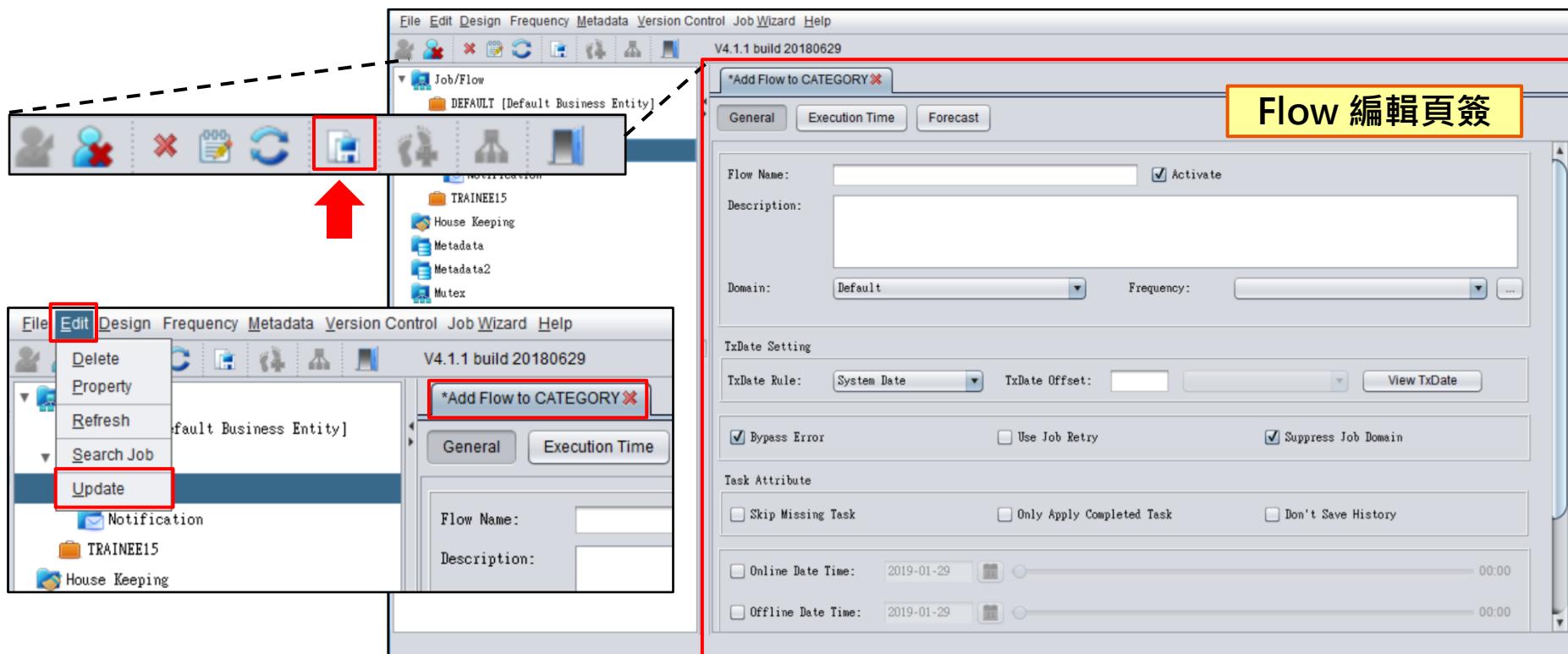
- 於 JF Designer 新增 Job Flow

- 於樹狀視圖區中先選擇目標 Category 後以滑鼠右鍵開啟選單並點選” Add Flow” ，或於工具列” Design” 選單中點選” Add Flow” 進行。



Job Flow - 新增

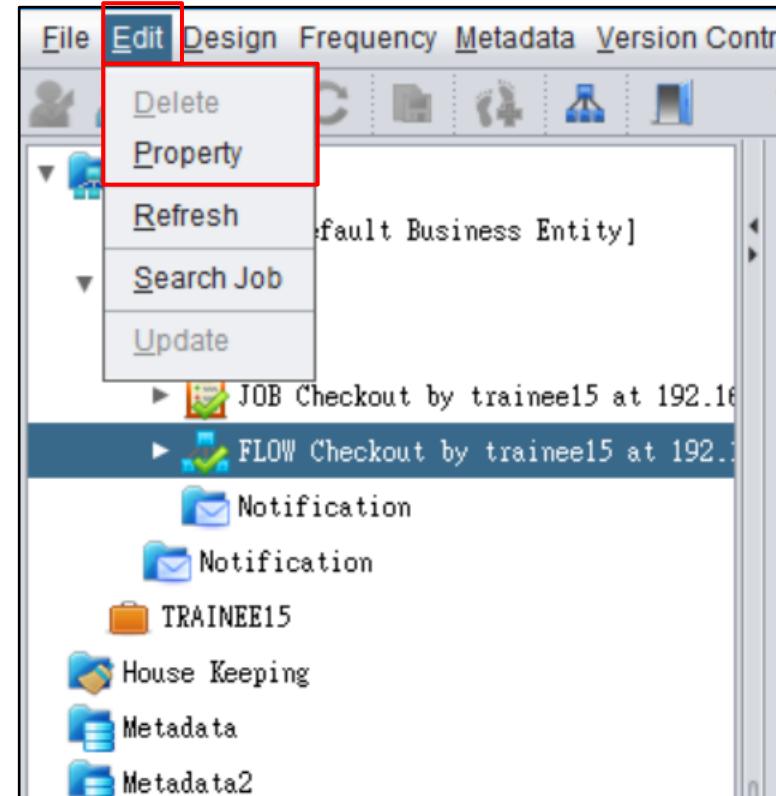
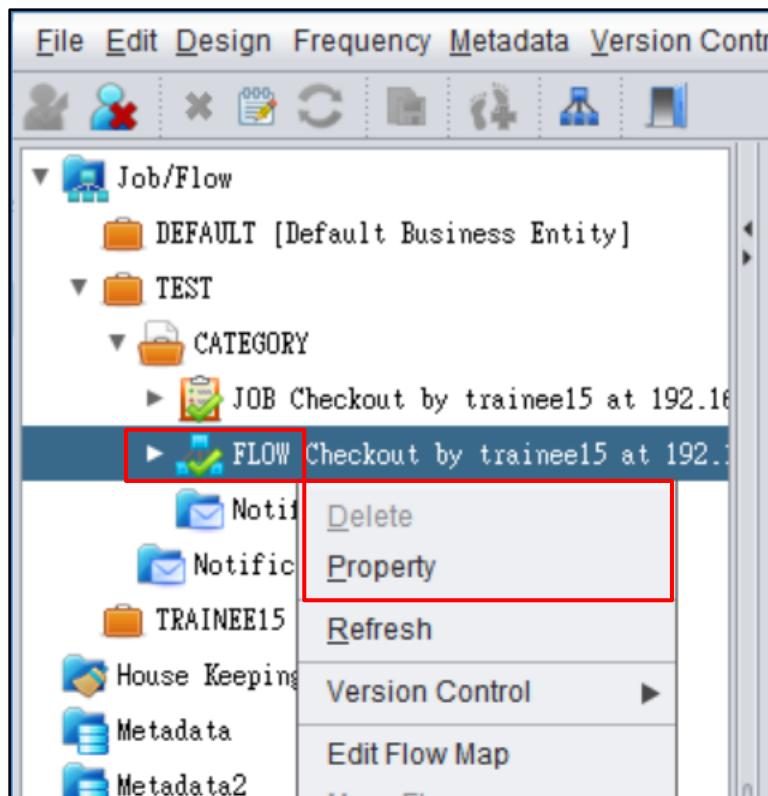
- 新增 Job Flow 時開啟編輯頁簽，編輯完畢後，須將設定更新到數據庫中，可點選工具列“Update”圖示，或於工具列“Edit”選單中點選“Update”進行，或直接以建盤輸入 Ctrl+S 進行。



Job Flow - 編輯、刪除

- 於 JF Designer 編輯、刪除 Job Flow

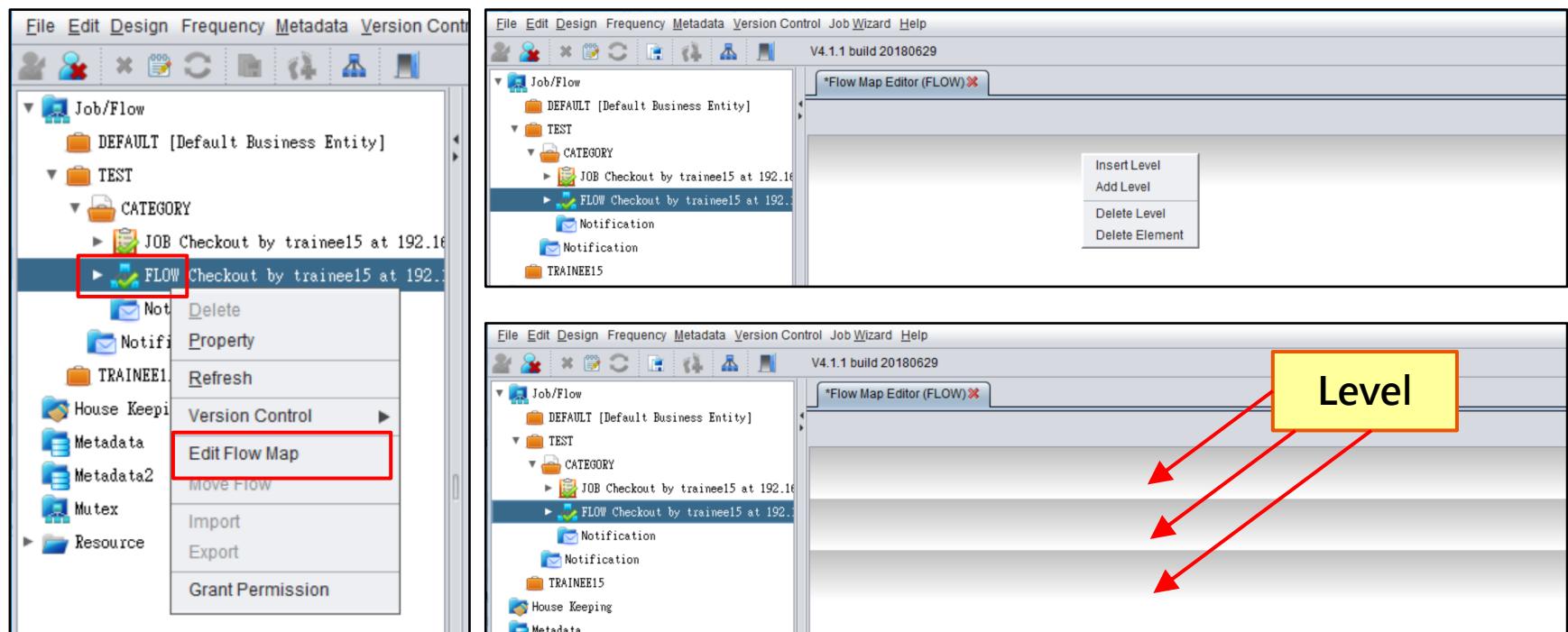
- 於樹狀視圖區中先選擇目標 Job Flow 後以滑鼠右鍵開啟選單並點選“Property”或“Delete”，或於工具列“Edit”選單中點選“Property”或“Delete”進行。



Job Flow - 編輯 Flow Map

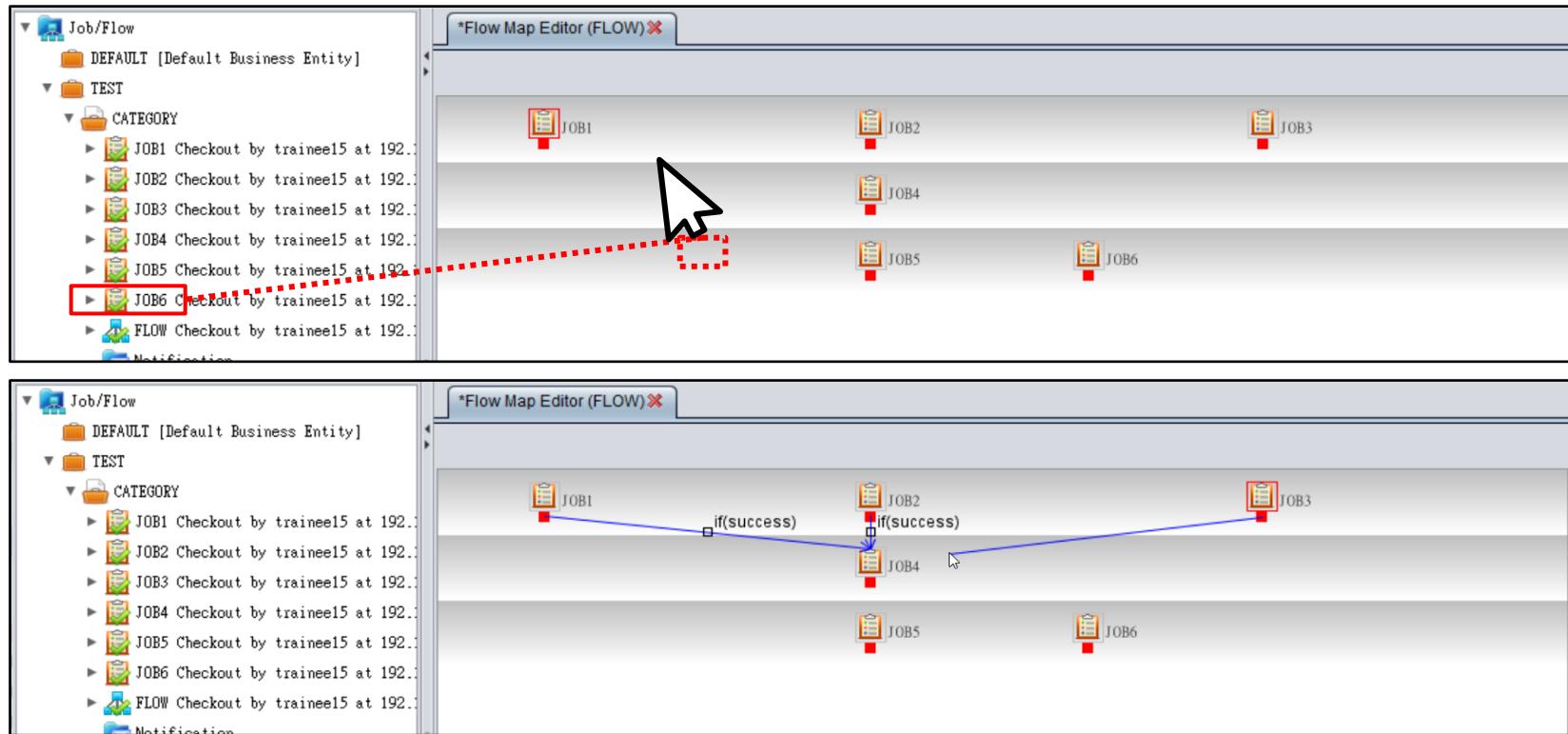
- 於 JF Designer 編輯 Flow Map

- 於樹狀視圖區中先選擇目標 Job Flow 後以滑鼠右鍵開啟選單並點選”Edit Flow Map”或”Delete”，或於工具列”Design”選單中點選”Edit Flow Map”進行。
- 開啟 Flow Map 頁面，於頁面當中以滑鼠右鍵開啟選單可增加 Level 或刪除 Level。



Job Flow - 編輯 Flow Map

- 自樹狀視圖區中以滑鼠左鍵按住 Job 圖示拖曳至 Flow Map 頁面上的 Level 當中後放開滑鼠左鍵，即完成 Job 帶入 Map 的動作。
- 從 Job 圖示的紅點上按住滑鼠左鍵並移動游標，即可建立藍色的連接線跟著游標移動，持續移動游標直到另一個 Plug-in 圖示上方之後放開滑鼠左鍵，即可完成連結。



Job Flow - 編輯 Flow Map

- 滑鼠左鍵雙擊連線中間的方框，可開啟編輯流程執行條件的對話視窗。

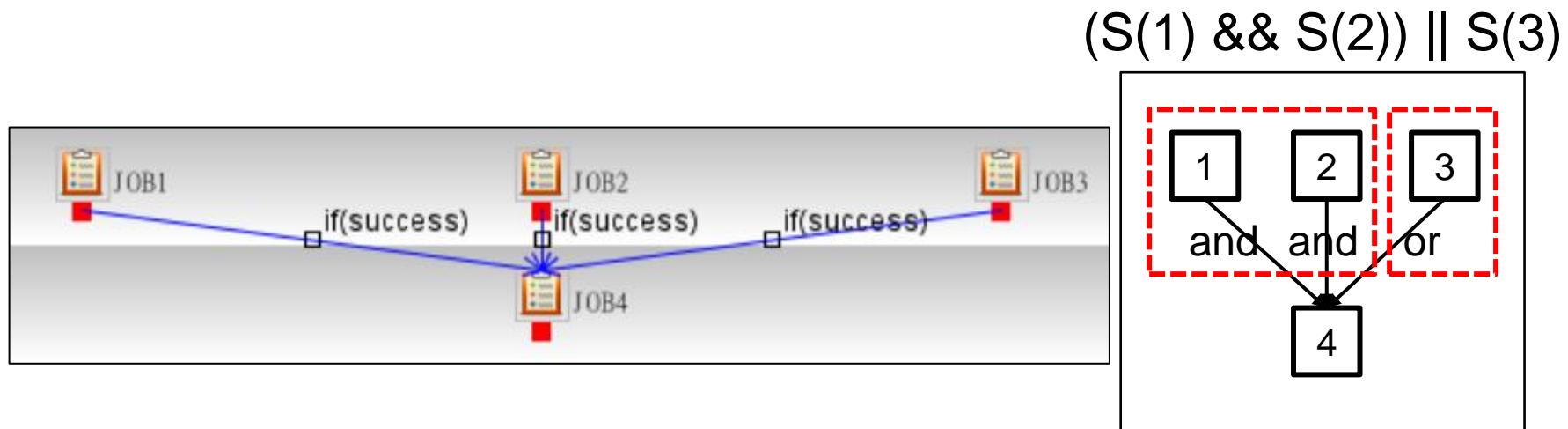
The screenshot shows the Flow Map Editor interface. On the left, there's a tree view of 'Job/Flow' with nodes like 'DEFAULT [Default Business Entity]', 'TEST', and 'CATEGORY'. In the main area, a flowchart shows six jobs: JOB1, JOB2, JOB3, JOB4, JOB5, and JOB6. Blue lines connect them, each labeled 'if(success)'. A red box highlights the 'if(success)' label on the line between JOB1 and JOB2. A red arrow points from the 'Condition Type' section of a 'Flow Element Setting' dialog to this red box. The dialog also has sections for 'Condition Group' (set to 'and') and 'Mandatory' (unchecked). At the bottom are 'OK' and 'Cancel' buttons.

if(success) : 當上方 Job 執行成功時
if(failure) : 當上方 Job 執行失敗時
if(timeout) : 當上方 Job 執行逾時時
if(completed) : 當上方 Job 執行完畢時
if(return ?) : 當上方 Job 執行後所回傳的值符合。
else : 當上方 Job 執行後沒有符合上述任一個 Condition 時

設定 Job 與 Job 之間連線的邏輯關係

Job Flow - 編輯 Flow Map

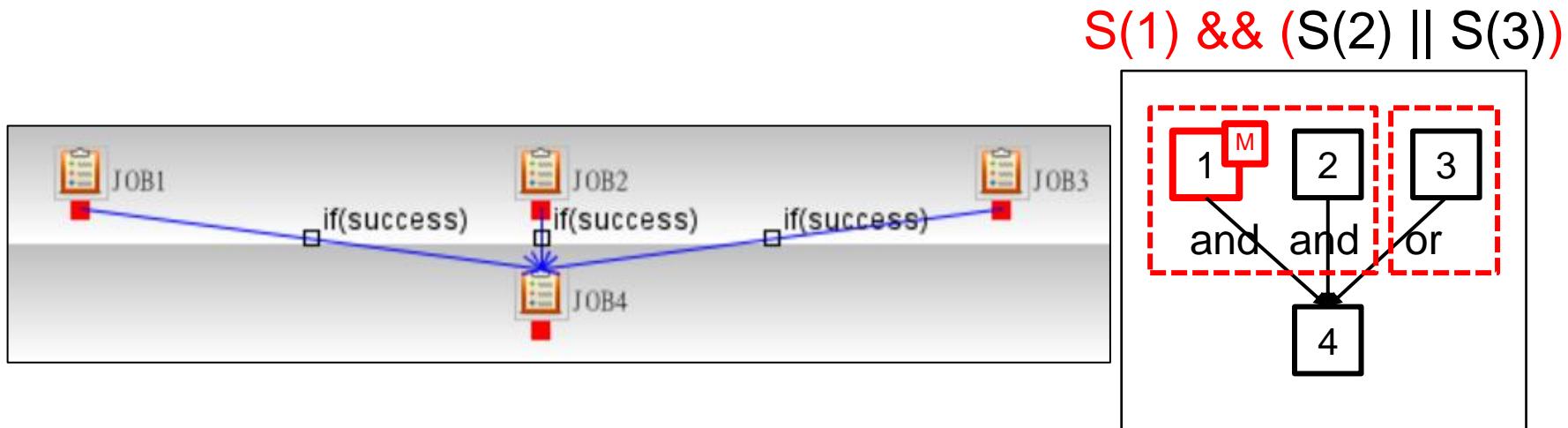
- Condition Group 情境說明
 - 假設目前有四個Job，分別為 Job1、Job2、Job3、Job4
 - Job1 -> Job4 (ConditionGroup=and),
 - Job2 -> Job4 (ConditionGroup=and),
 - Job3 -> Job4 (ConditionGroup=or)
 - 則當“Job3獨自執行成功時”，就可進行到 Job4



Job Flow - 編輯 Flow Map

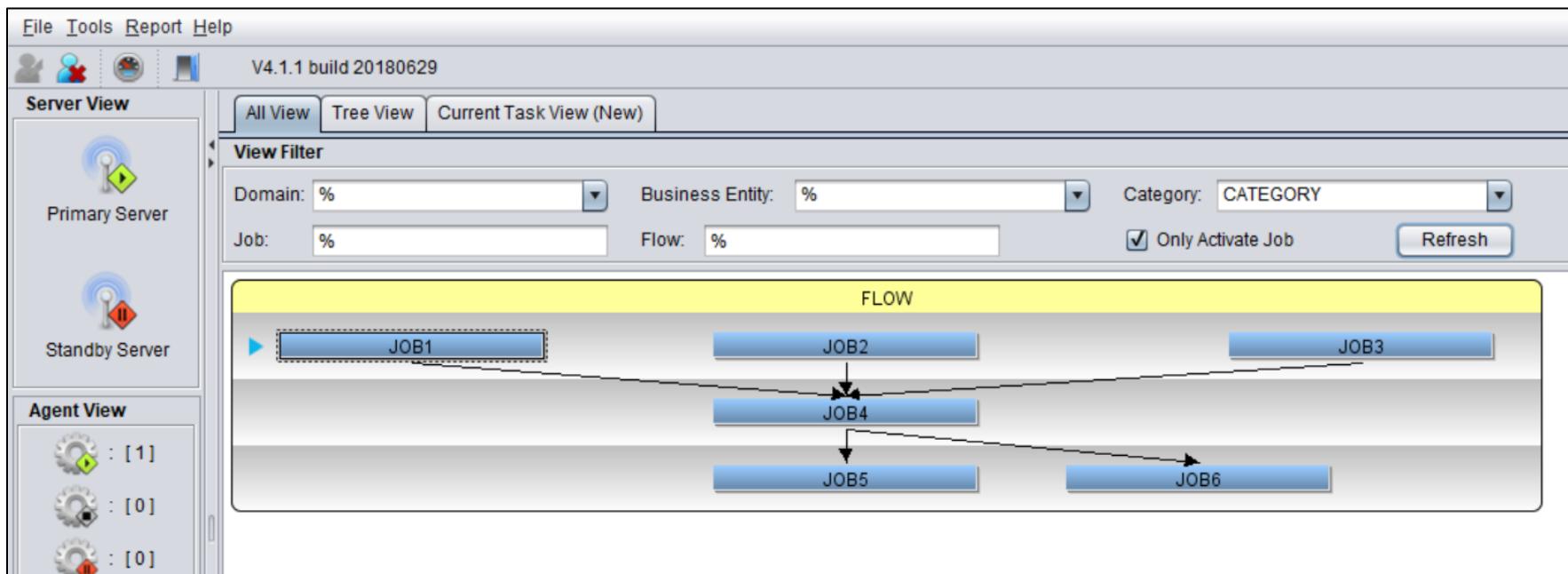
- Condition Group 情境說明

- 假設目前有四個Job，分別為 Job1、Job2、Job3、Job4
- Job1 -> Job4 (ConditionGroup=and + 勾選 Mandatory),
- Job2 -> Job4 (ConditionGroup=and),
- Job3 -> Job4 (ConditionGroup=or)
- 則 Job1 無論如何都必須是執行成功；如果 Job3 執行成功時 Job1 未成功，則即使 Job3 為 or 也不能進行到 Job4。



Job Flow - Task Console 呈現畫面

- 於 Task Console 圖形化介面可呈現 Job Flow 關係。

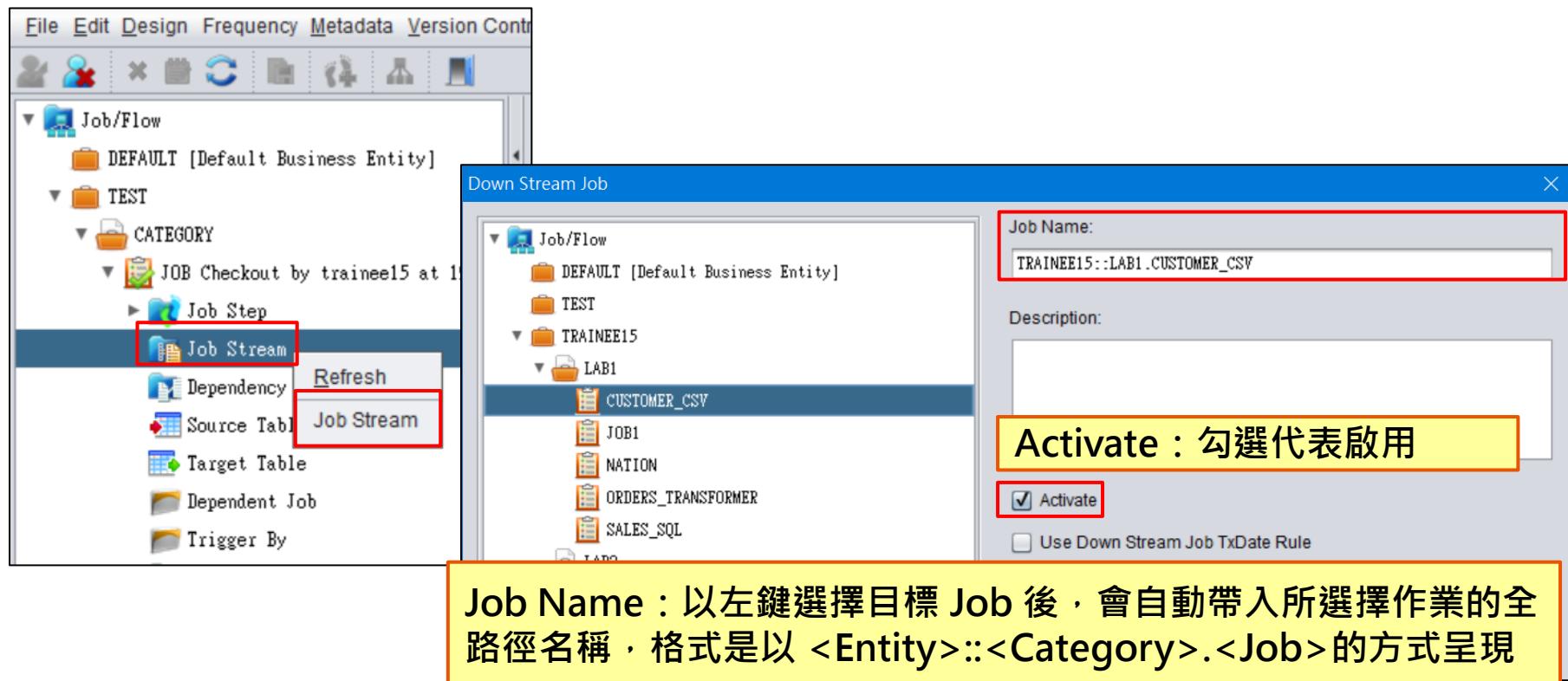


附錄4– Job Stream

Job Stream - 新增

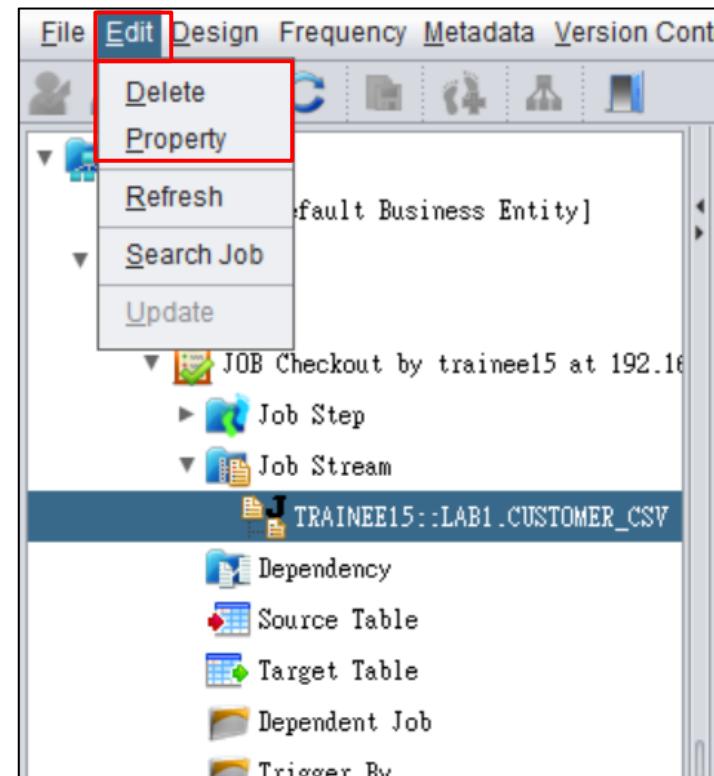
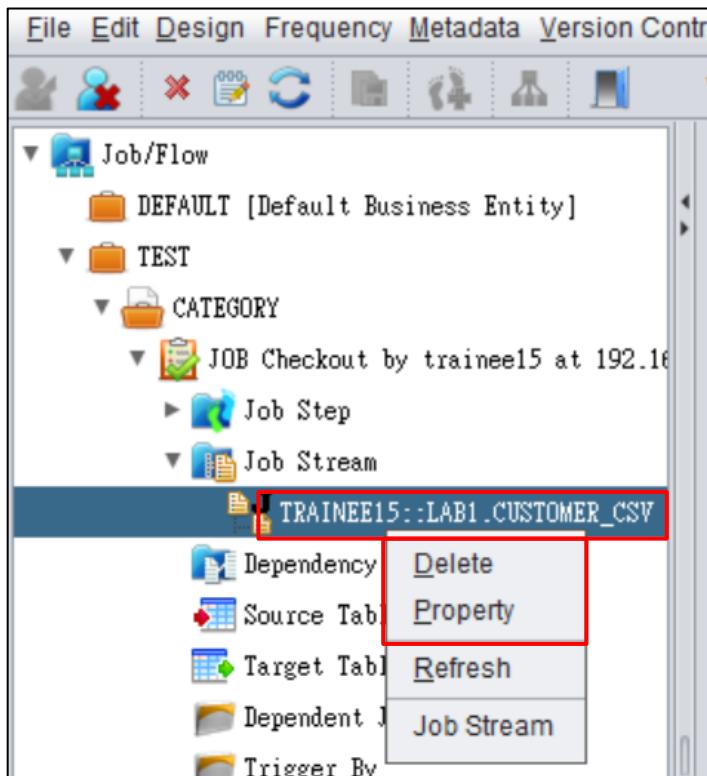
- 於 JF Designer 新增 Job Stream

- 於樹狀視圖區中先選擇目標 Job 的“ Job Stream” 後以滑鼠右鍵開啟選單並點選“ Job Stream” ，或於工具列“ Design” 選單中點選“ Job Stream” 進行。



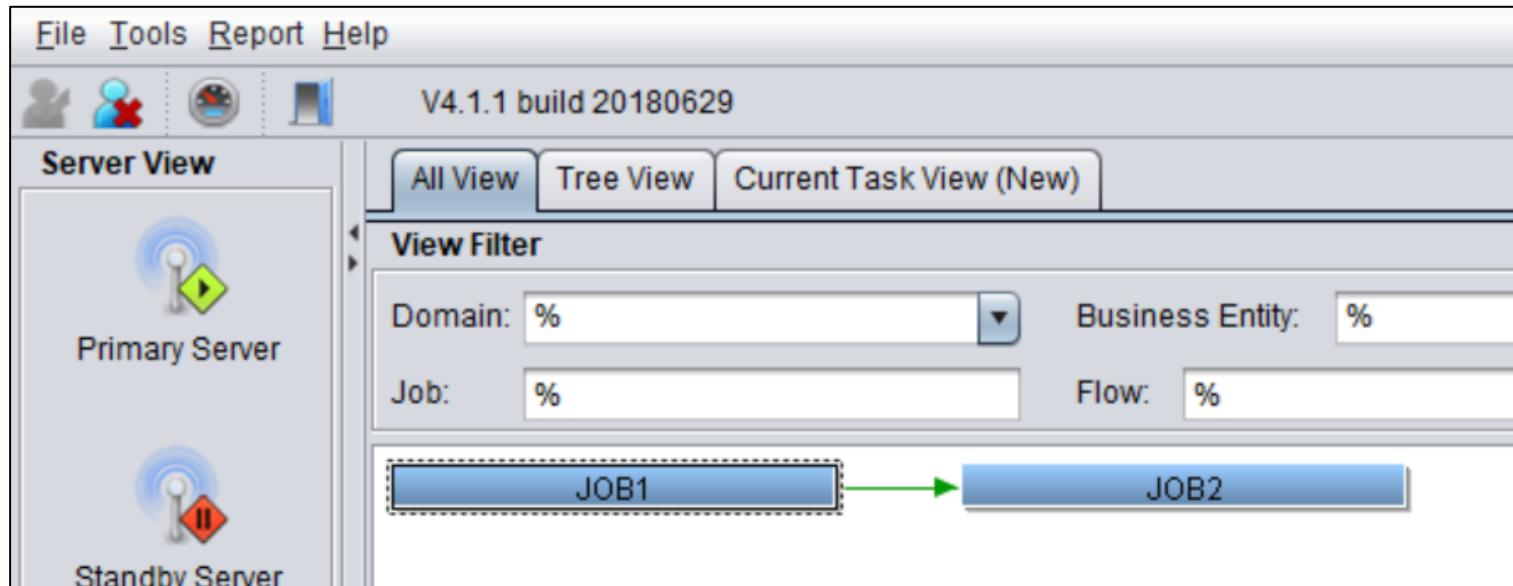
Job Stream - 編輯、刪除

- 於 JF Designer 編輯、刪除 Job Stream
 - 於樹狀視圖區中先選擇目標 Job Stream 後以滑鼠右鍵開啟選單並點選“Property”或“Delete”，或於工具列“Edit”選單中點選“Property”或“Delete”進行。



Job Stream - Task Console 呈現畫面

- 於 Task Console 圖形化介面可呈現 Job Stream 關係，以 Job1 設定 Job Stream 定義關係到 Job2 為例，會以虛線框住上游 Job 並以實線箭頭指向下游 Job。

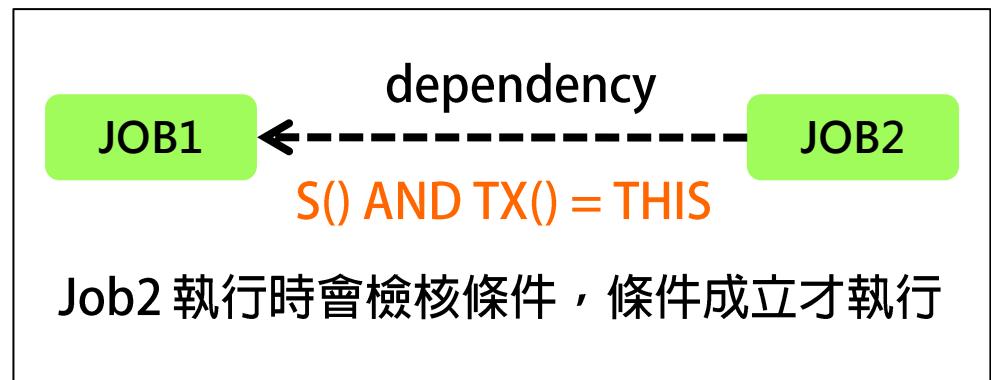
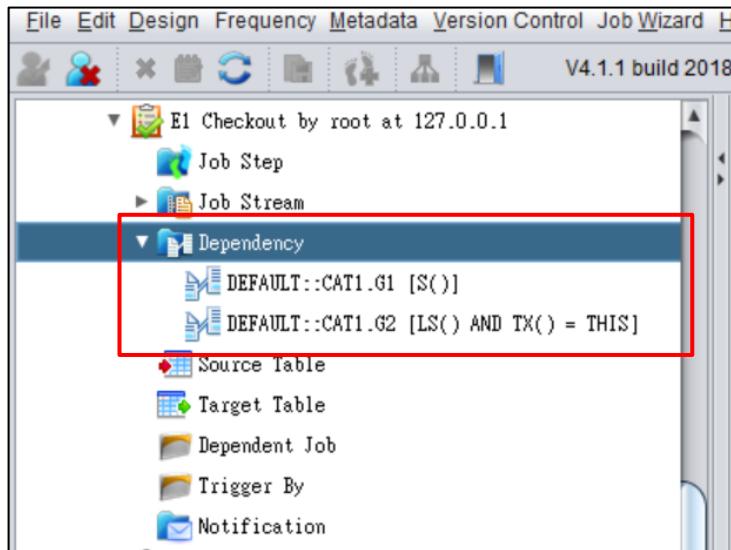


附錄5– Job Dependency

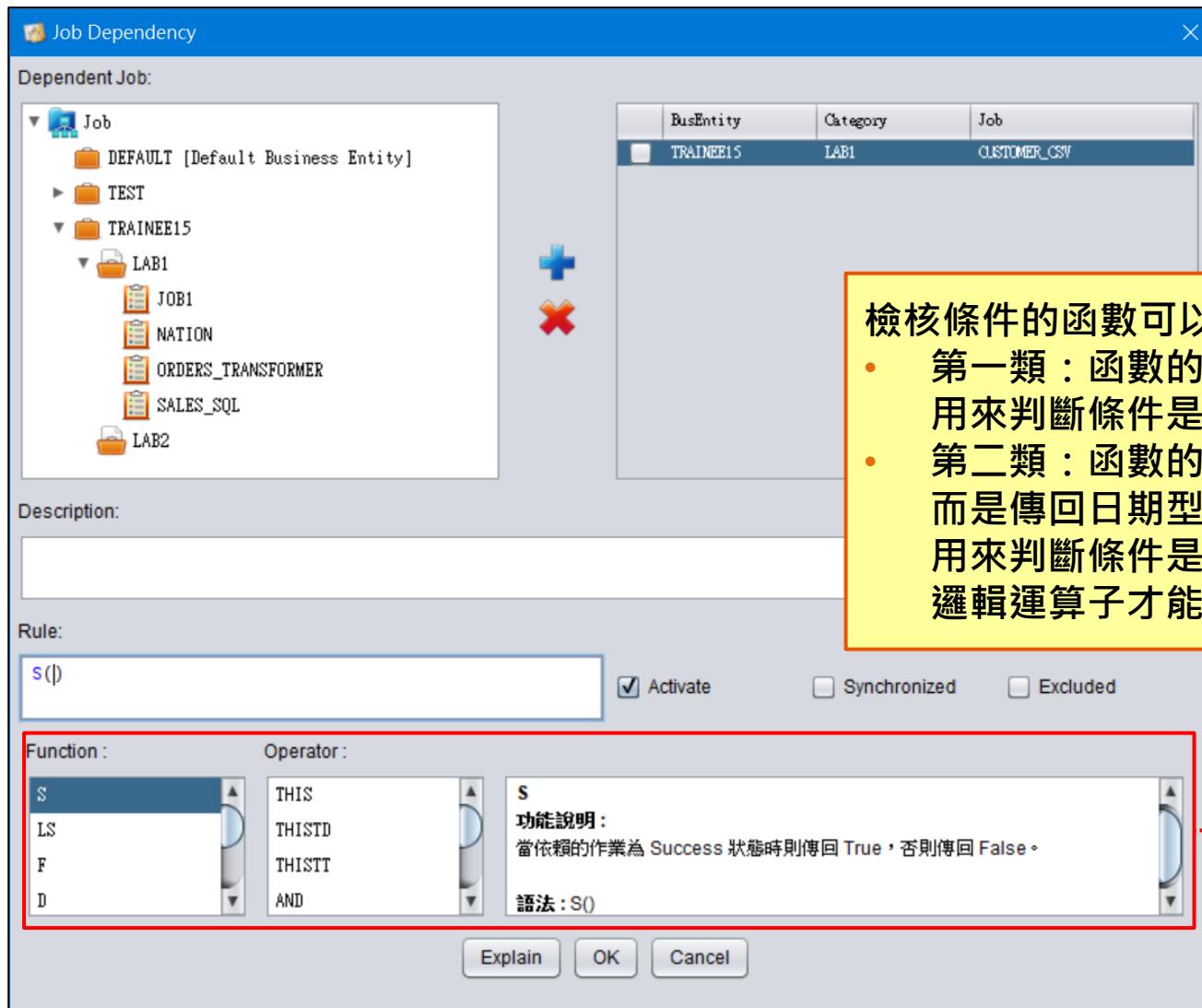
Job Dependency

- Job Dependency 作業依賴條件

- 是用來設定作業執行前的檢核條件。此檢核條件會在準備執行作業之前用來檢查條件是否成立，若成立才會啟動作業的執行，若不成立則會持續定時地重複執行檢核條件，直到條件成立時才會開始作業的執行。
- 一項作業可以同時設定多個 Job Dependency，若設有多個 Job Dependency，則所有檢核條件都須成立才能執行作業。



Job Dependency - 檢核條件(函數)



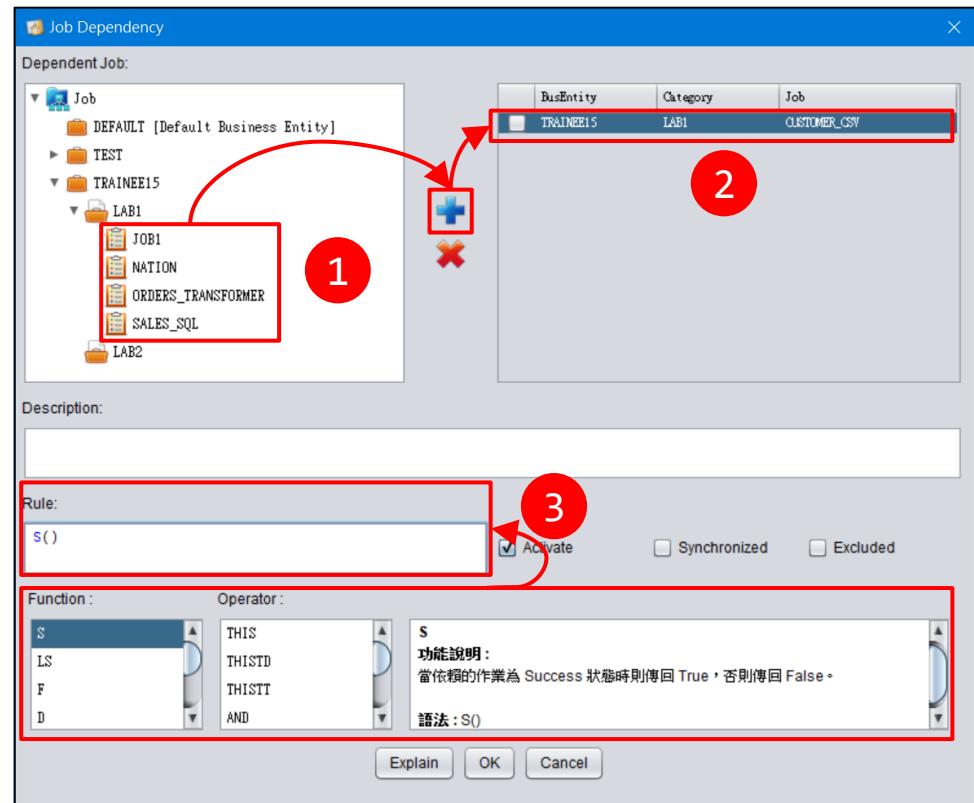
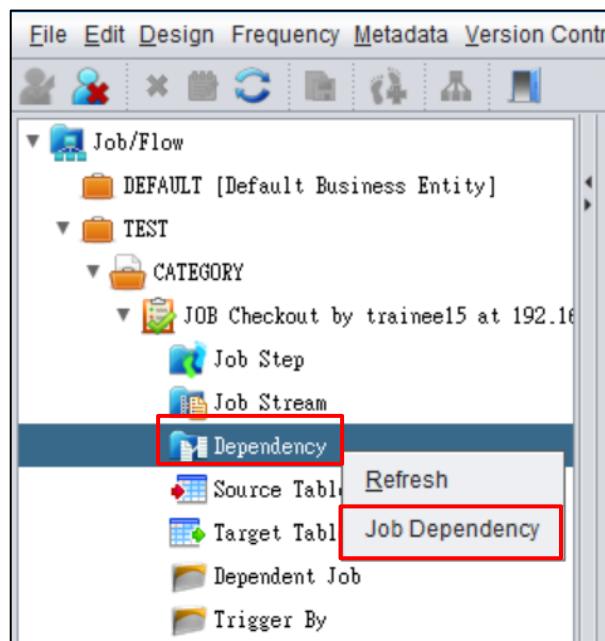
Job Dependency - 檢核條件(函數)

- **S()**
 - 必須是所依賴作業的目前狀態為成功時，此條件的判斷結果才為成立。
- **TX() = THIS**
 - 必須是所依賴作業的資料日期等於目前作業任務的資料日期時，此條件的判斷結果才為成立。
- **S() AND TX() = THIS**
 - 必須是所依賴作業的目前狀態為成功同時其資料日期等於目前作業工作的資料日期時，此條件的判斷結果才為成立。
- **S() AND TX() = MONEND THIS, -1)**
 - 必須是所依賴作業的目前狀態為成功同時其資料日期等於目前作業工作的資料日期的前一個月的月底日時，此條件的判斷結果才為成立。
- **S() AND (TX() >= WEEKBEGIN THIS, -1) AND TX() <= WEEKEND THIS, -1))**
 - 必須是所依賴作業的目前狀態為成功同時其資料日期等於目前作業工作的資料日期的前一週的範圍之內，此條件的判斷結果才為成立。

Job Dependency - 新增

- 於 JF Designer 新增 Job Dependency

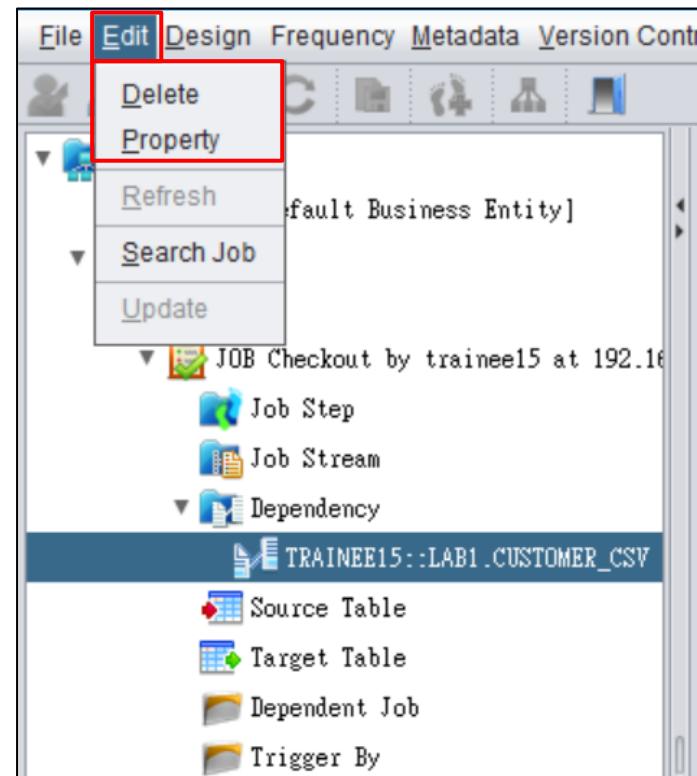
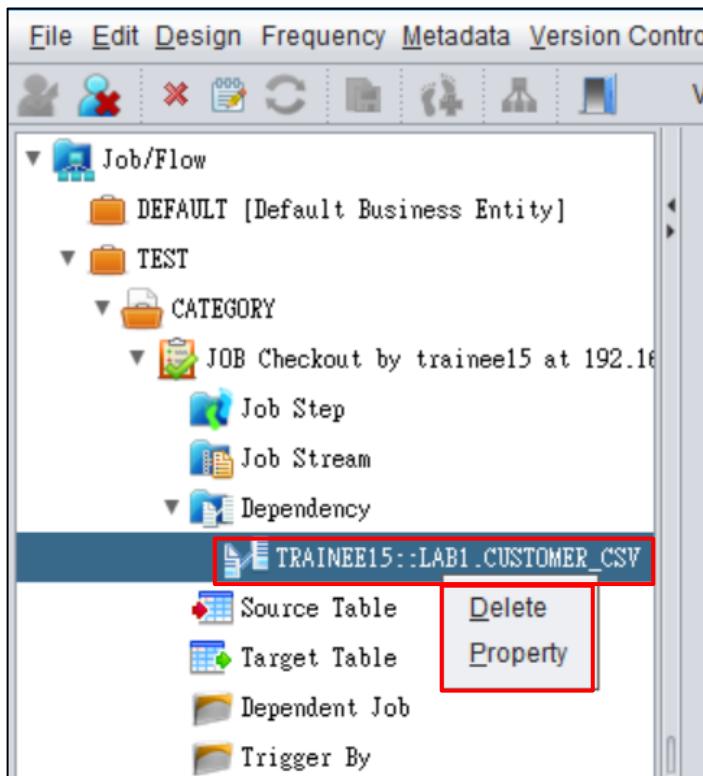
- 於樹狀視圖區中先選擇目標 Job 的“ Job Dependency” 後以滑鼠右鍵開啟選單並點選“ Job Dependency” ，或於工具列“ Design” 選單中點選“ Job Dependency” 進行。



Job Dependency - 編輯、刪除

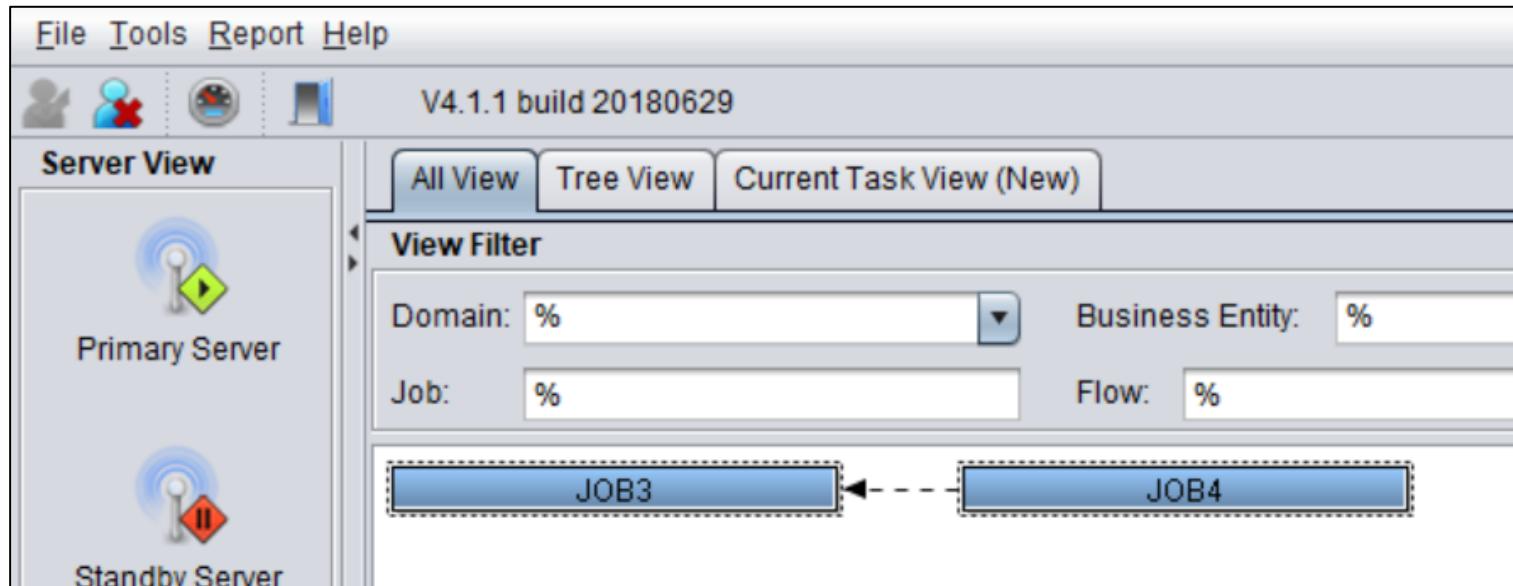
- 於 JF Designer 編輯、刪除 Job Dependency

- 於樹狀視圖區中先選擇目標 Job Dependency 後以滑鼠右鍵開啟選單並點選“Property”或“Delete”，或於工具列“Edit”選單中點選“Property”或“Delete”進行。



Job Dependency - Task Console 呈現畫面

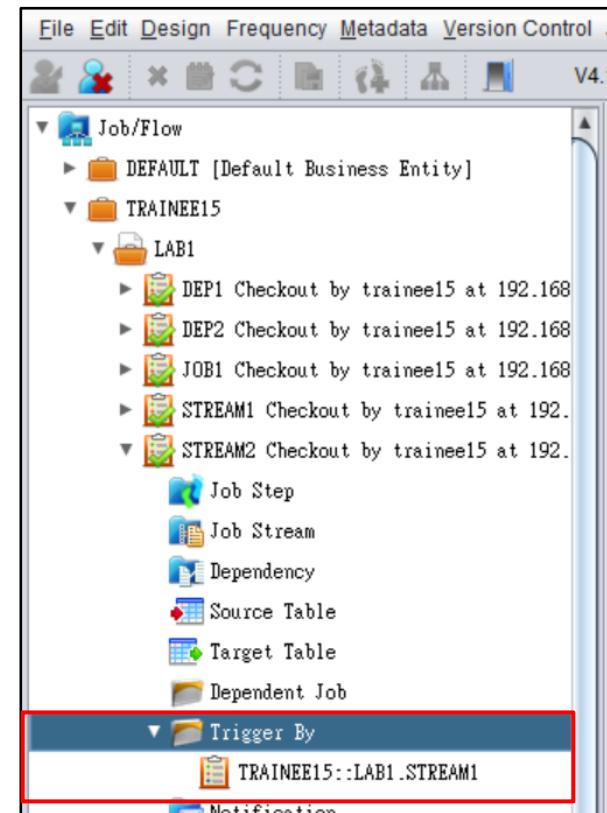
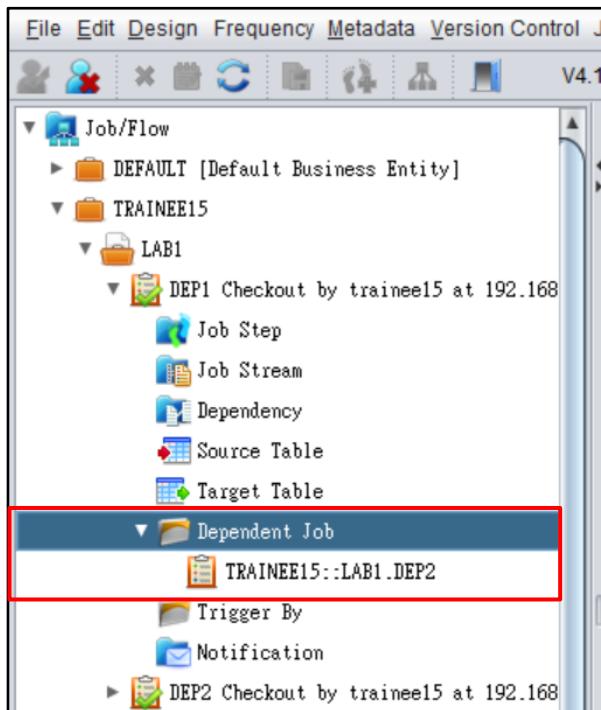
- 於 Task Console 圖形化介面可呈現 Job Dependency 關係，以 Job4 設定 Job Dependency 定義關係到 Job3 為例，會以虛線框住 Job 並以虛線箭頭指向依賴的 Job。



附錄6– Dependent Job & Trigger by

JF Designer -- Dependent Job & Trigger by

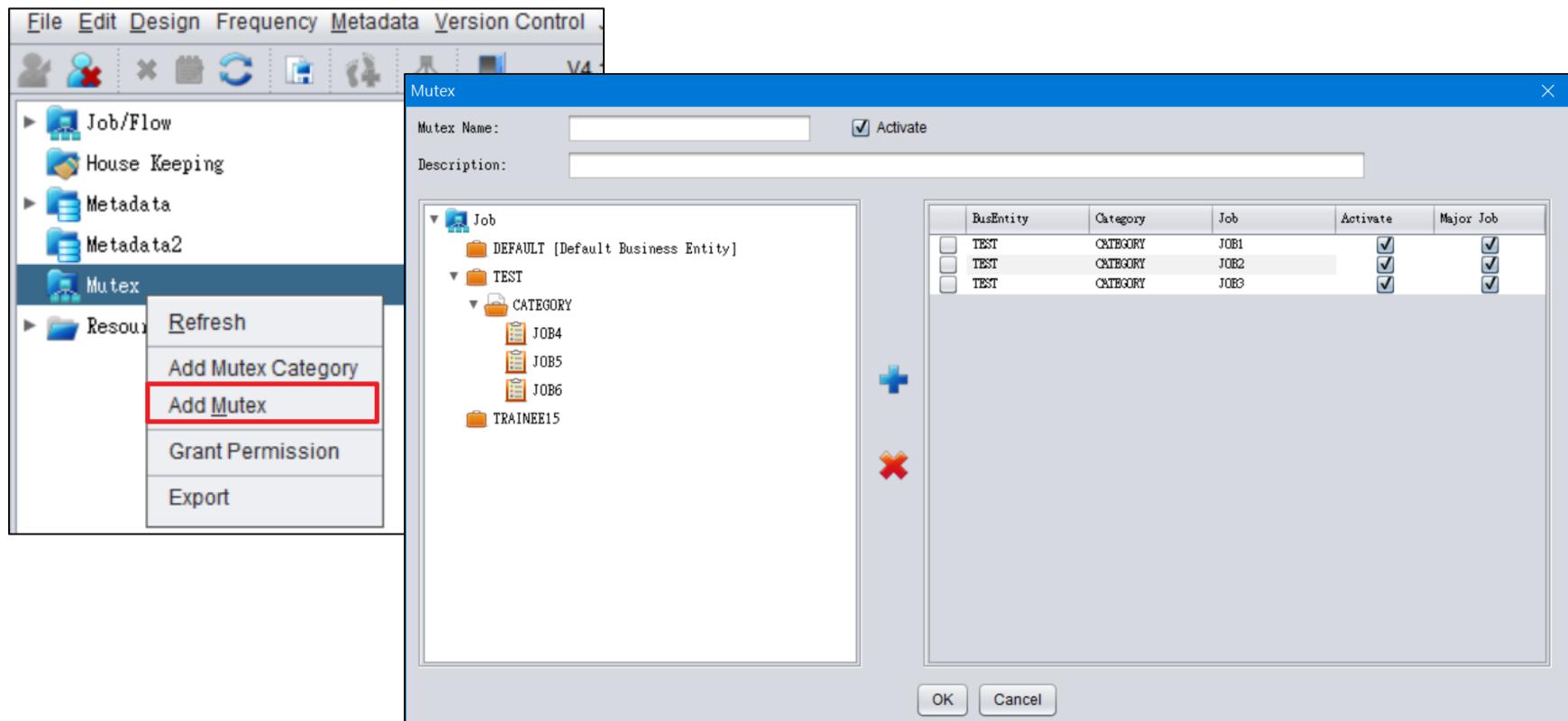
- **Dependent Job**
 - 可檢視此作業被哪些作業定義為 Job Dependency Rule 的關係對象。
- **Trigger by**
 - 可檢視此作業被哪些作業定義為 Job Stream 的關係對象。



附錄7 – Mutex

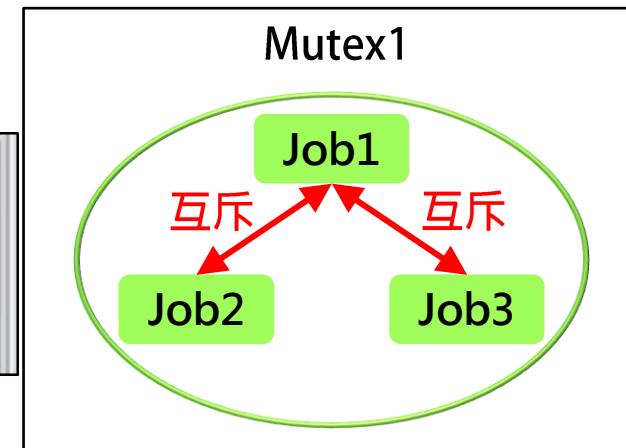
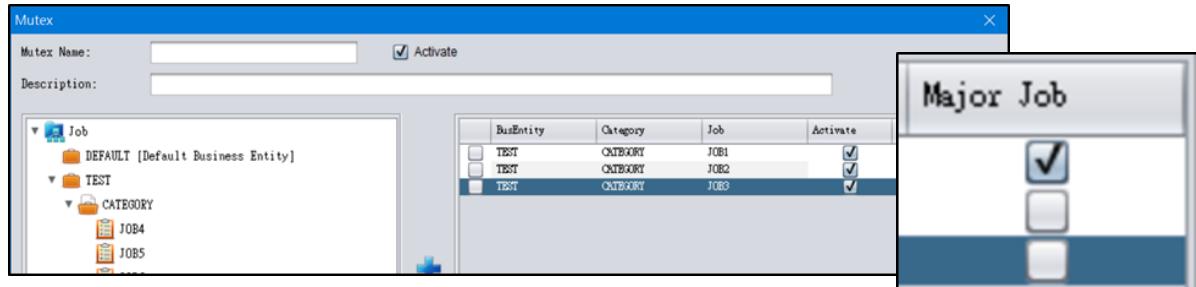
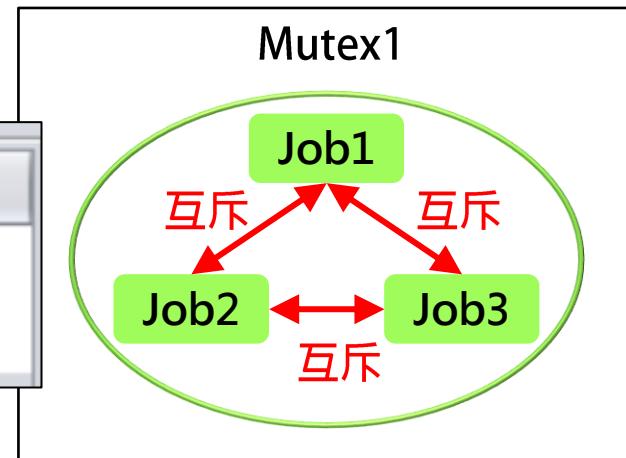
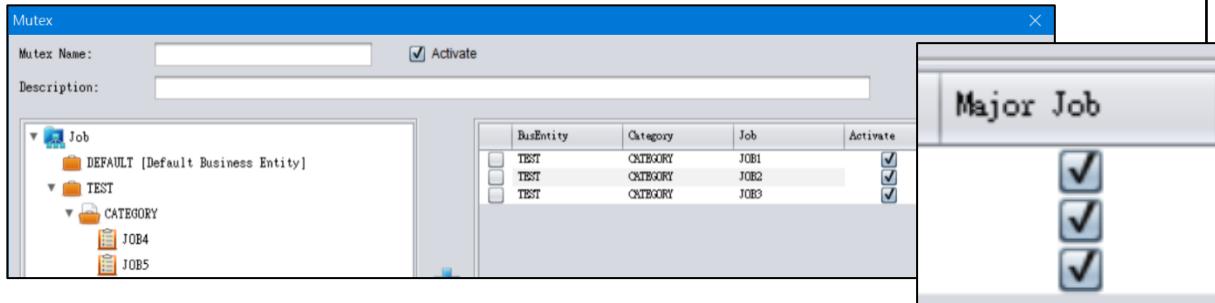
Mutex - 新增

- 於 JF Designer 新增 Mutex
 - 於樹狀視圖區中先選擇 “Mutex” 後以滑鼠右鍵開啟選單並點選“Add Mutex”，或於工具列“Design” 選單中點選“Add Mutex” 進行。



Mutex - 新增

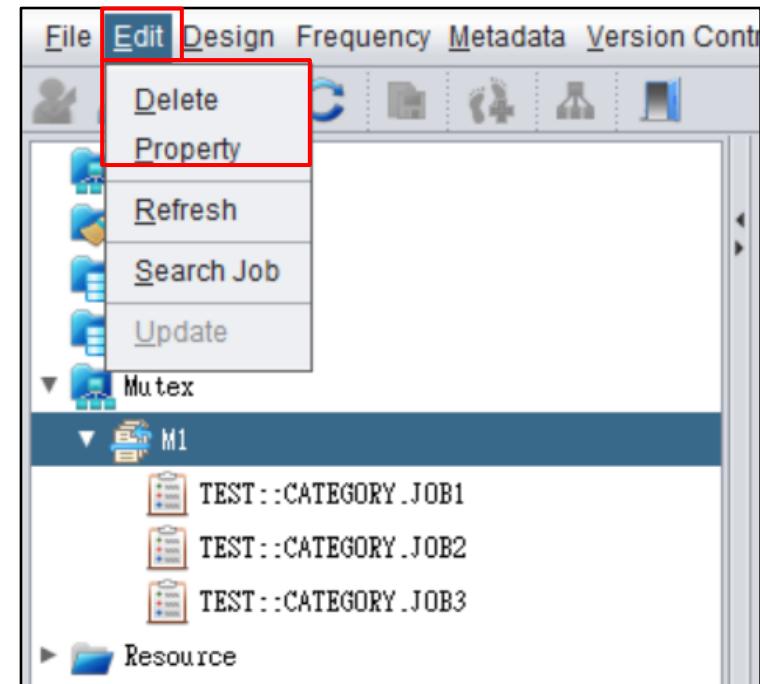
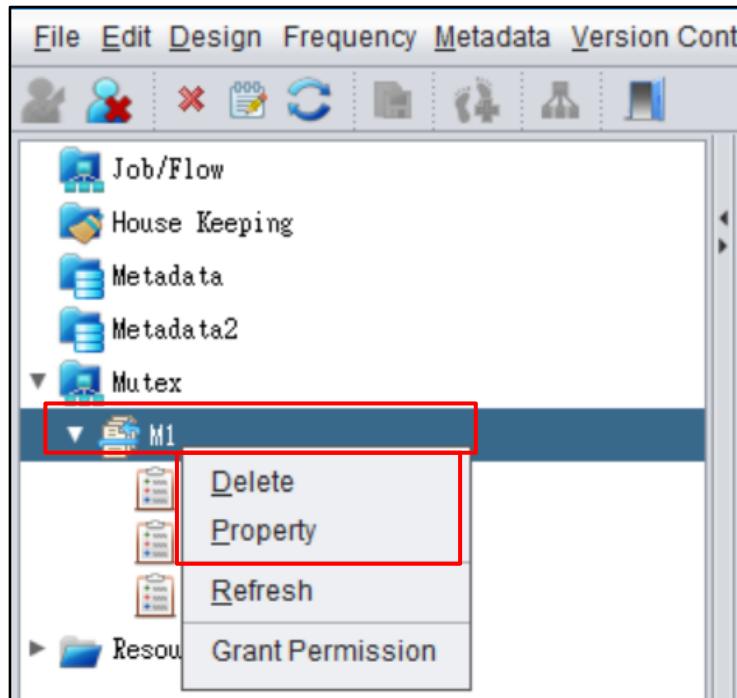
- Major Job 選項全部勾選，則 Job 兩兩互斥；
Major Job 選項部分勾選，則未勾選的 Job 之間無互斥關係。



Mutex - 編輯、刪除

- 於 JF Designer 編輯、刪除 Mutex

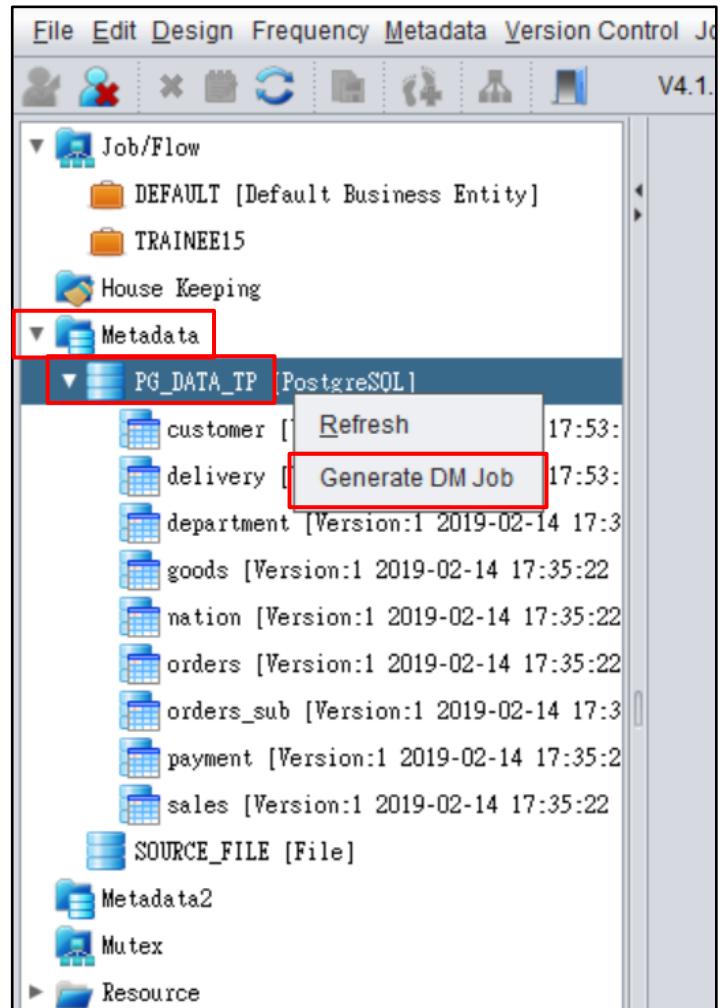
- 於樹狀視圖區中先選擇目標 Mutex 後以滑鼠右鍵開啟選單並點選“Property”或“Delete”，或於工具列“Edit”選單中點選“Property”或“Delete”進行。



附錄8– Job Wizard

Job Wizard 作業產生器

- 可透過元數據表定義，批次建立大量相同設計的 ETL 作業
 - ETL 作業是指一個完整的 Job，其帶有一個 Step 且 Step 種類為“ Data Management” ，Step 當中的元件也已經佈署完畢。
 - 於 JF Designer 樹狀視圖區展開“ Metadata” 項目，可選擇針對 Meta Database 或 Meta Table，以滑鼠右鍵開啟選單並點選“ Generate DM Job” 進行。



Job Wizard 作業產生過程

Job Wizard

Please select the following tables :

Meta Table Name	Update time
customer	2019-02-14 17:53:24
delivery	2019-02-14 17:53:24
department	2019-02-14 17:35:22
goods	2019-02-14 17:35:22
nation	2019-02-14 17:35:22
orders	2019-02-14 17:35:22
orders_sub	2019-02-14 17:35:22
payment	2019-02-14 17:35:22
sales	2019-02-14 17:35:22

勾選目標元數據表

Back Next Run Finish

Job Wizard

Please select one of the following templates :

- Reader + Writer
- Reader + Default Transformer + Writer
- Multi Reader + Writer
- Reader + Multi Writer
- Multi Reader + Multi Writer

選擇 plug-in 設計架構

Back Next Run Finish

Job Wizard

Please set the following job attributes :

Name Prefix:	<input type="text"/>
Domain:	Default
Entity:	TRAINEE15
Category:	ETL
Agent:	

因應所選擇的 plug-in 設計架構，顯示不同的設定畫面，提供使用者輸入。

Back Next Run Finish

Job Wizard

Please click run button to start job wizard :

100%

Job Wizard has been completed.

Job 批次建立完畢

Back Next Run Finish

Job Wizard 作業產生結果

- 執行完畢，可在作業階層下看到建立出來的 ETL Job。

The screenshot shows the Job Wizard interface (V4.1.1 build 20180629) with the following details:

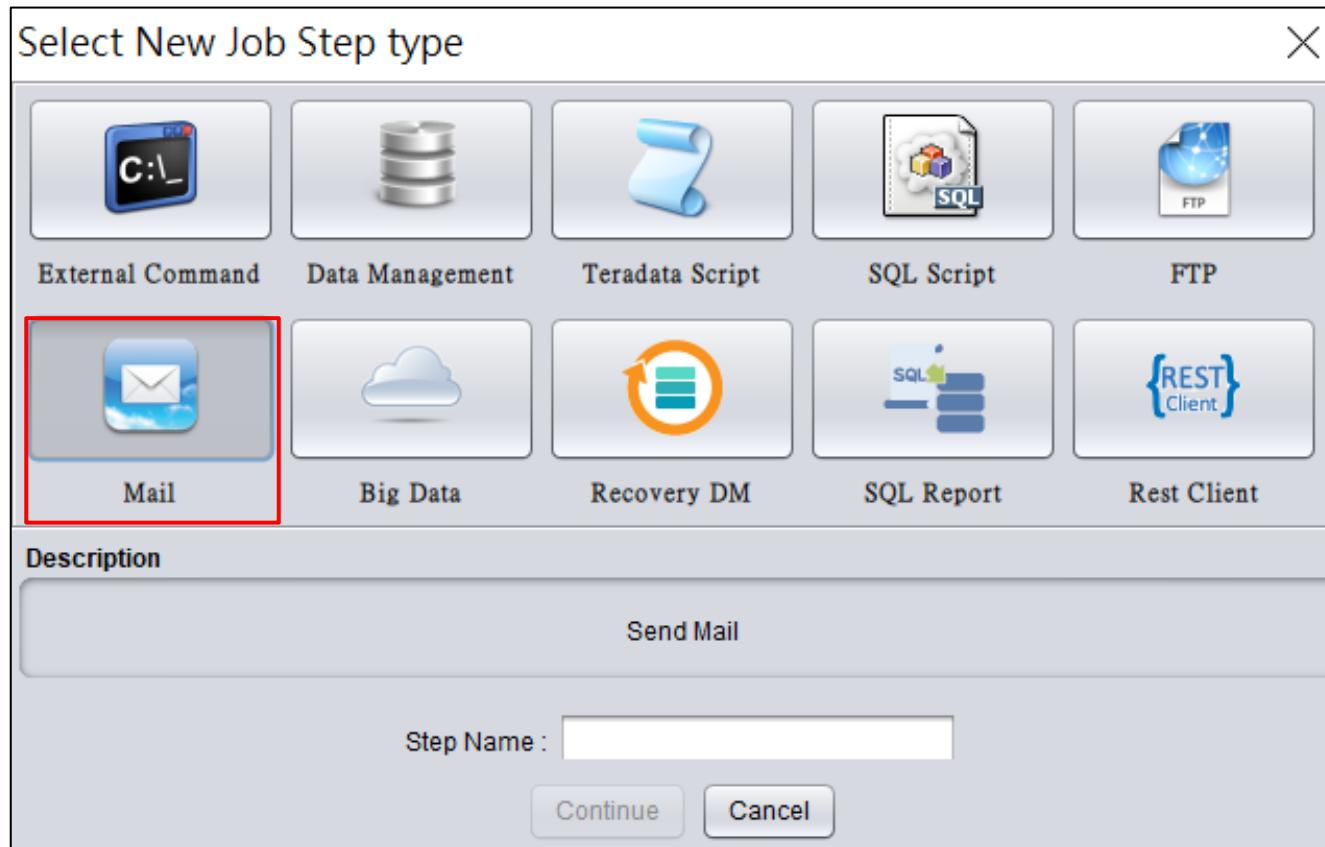
- Job/Flow Tree:** Shows a hierarchy of jobs. A red box highlights the 'CUSTOMER' step under the 'LAB1' job.
- Job Step Editor:** The 'CUSTOMER' step is selected. A red arrow points from the tree to the editor. The editor has tabs for General, Statistic, and Postcondition. The General tab is active, showing:
 - Step Name:** CUSTOMER
 - Description:** (empty)
 - Success Rule:** Equal To
 - Success Value:** (empty)
 - Resource Control:** (empty)
 - Resource Control-2:** (empty)
- Plugin [reader] Property Edit Dialog:** A modal window titled 'Plugin [reader] Property Edit' is open. It shows:
 - Plugin:** JDBC Reader - Generic
 - Class:** com.netpro.dm.plugin.PluginReaderJDBC
 - Description:** (empty)
 - DBCon:** 192.168.17.111_TRAINEE15
 - Display Name:** (empty)
 - PROPERTY NAME** and **PROPERTY VALUE** table:

PROPERTY NAME	PROPERTY VALUE
DATABASE	tp
TABLE_NAME	customer
CLIENT_ENCODING	(empty)
DB_ENCODING	(empty)
FAIL_IF_NODATA	(empty)
ISOLATION_LEVEL	DEFAULT
LIMITED_RECORD	0
KEEP_NULL	(empty)
QUOTE_NAME	(empty)
SQL_FETCH_SIZE	(empty)
TRIM_MAX_LENGTH	(empty)
CONVERT_EXT_CFG	(empty)
TRIM_NEWLINE	(empty)
TRIM_IVC	(empty)
- Diagram View:** At the bottom, there is a diagram showing a flow from a 'reader' icon to a 'writer' icon, with arrows indicating the data flow direction.

附錄9—發送 Mail 及通知

Mail Step

- Mail Step
 - 提供寄送電子郵件到指定的郵件帳號，並可以指定所需附加的檔案。



Mail Step 寄送 E-mail 設定

Add Step to JOB1

General File Statistic Postcondition

Step Name: MAIL_STEP1 Activate

Description:

Success Rule: Equal To

Success Value 1: 0 Success Value 2: 0

Mail Server:

Subject:

Content:

Input Content File Path Delete File

Input Content

Mail From:

Add Step to JOB1

General File Statistic Postcondition

Mailing List File Path:

Send Mail If:

File Exists

File Size(Bytes) >=

Text File Line Number >=

Action After Sending Mail:

Do Nothing Delete File

Move File To (Folder Path)

Attach File Path:

File Path	File Name	Charset	ZIP File

主旨、內文皆可帶入變數；內文部份可支援 Html 語法

透過事先編輯收件者清單，可同時寄送多位收件者

可選擇特定檔案做為附件

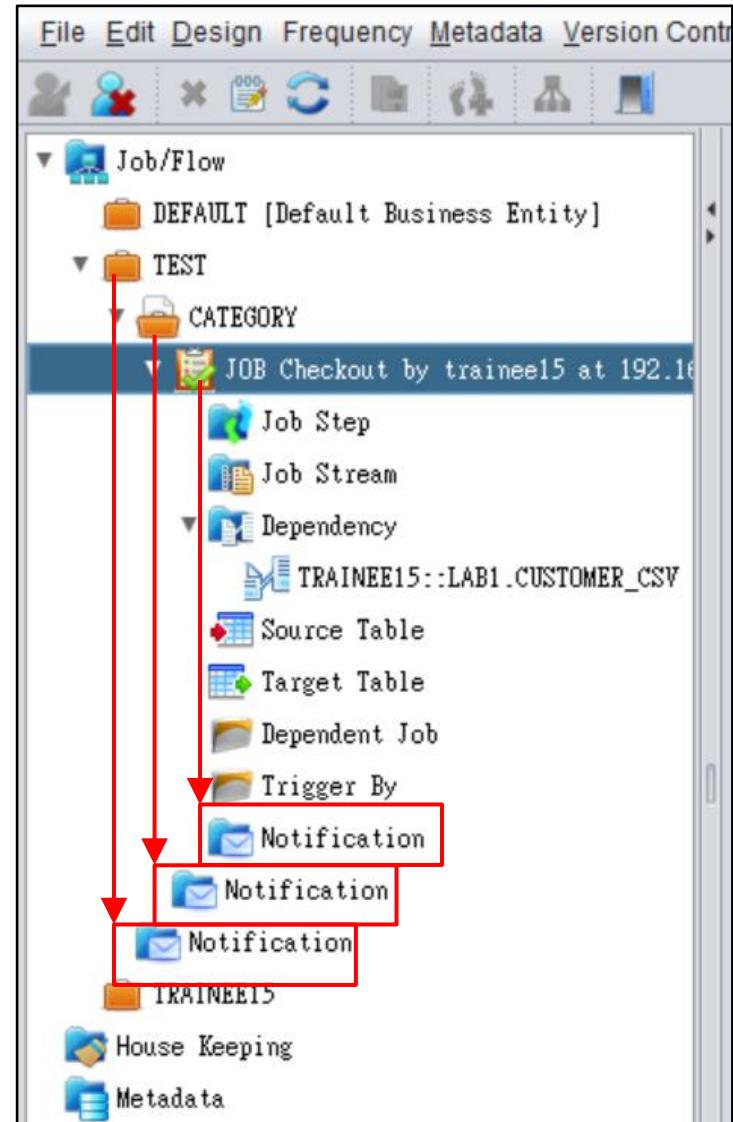
Mail Step -- Mailing List File Path

- Mailing List File Path : 寄送電子郵件帳號的檔案位置，電子郵件帳號以檔案的方式存在，必須在 JCS Agent 所能讀取到的位置，其格式包括：
 - ii. 斷行
 - aaa@mail.com
 - bbb@mail.com
 - iii. 分號 : aaa@mail.com;bbb@mail.com
 - iv. 逗號 : aaa@mail.com,bbb@mail.com

Notification

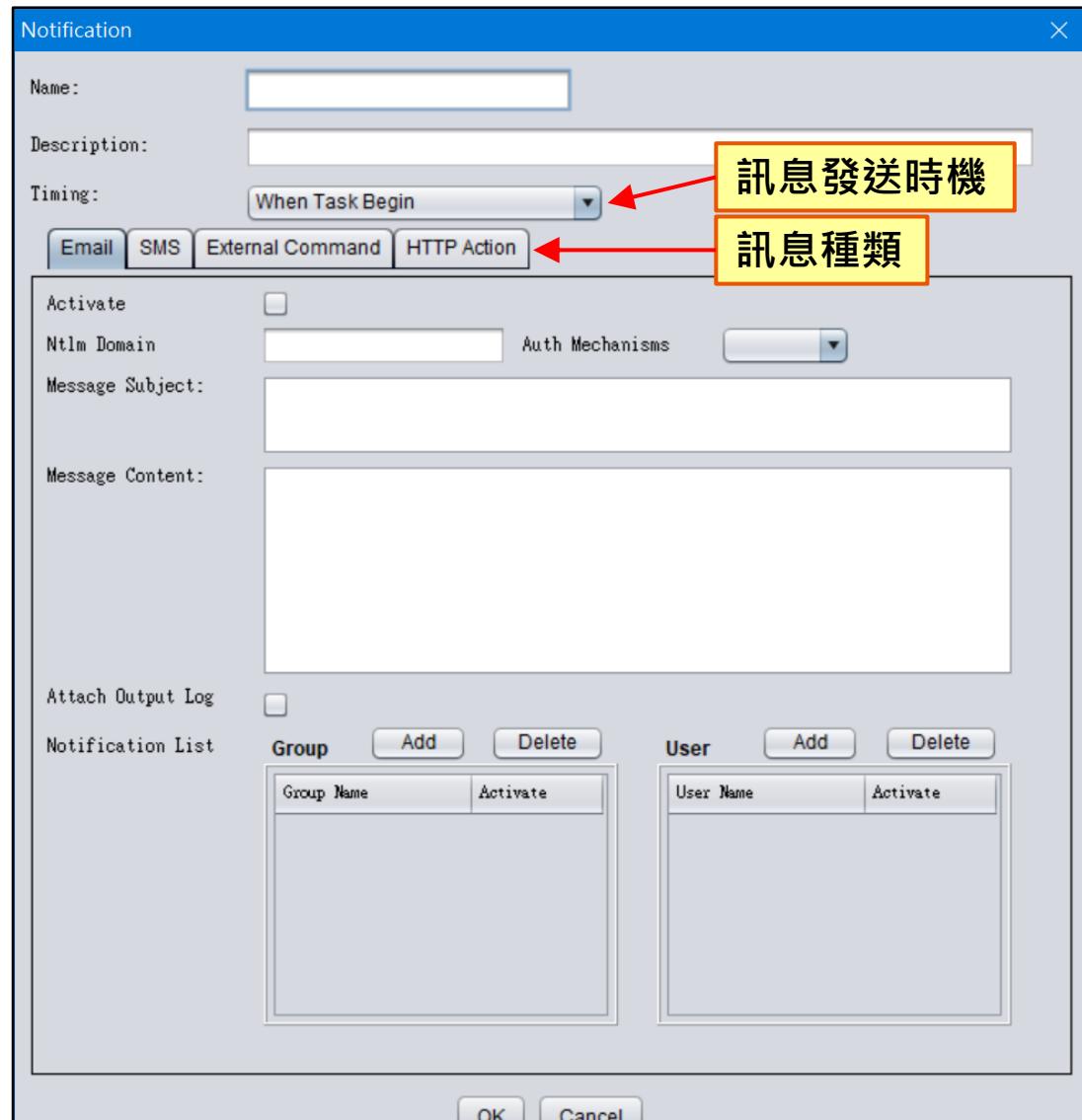
- **Notification 訊息通知**

- 透過訊息通知的設定可以即時掌握各個作業執行的情況，使用者可以決定在作業執行的哪個時間點，採用SMS或是E-Mail的方式來通知群組或是使用者作業執行的情形。
- 可針對 Job 、Category 或 Business Entity 作業階層設定 Notification
- 若所有作業階層皆有設定 Notification，則以範圍小的作業階層設置為主，相同條件不會重複通知。



寄送 Notification 設定

- 訊息種類
 - 電子郵件
 - 行動短訊
 - External Command
 - HTTP Action
- 訊息發送時機
 - 作業執行開始時
 - 作業執行完成時
 - 作業執行成功時
 - 作業執行失敗時
 - 超過接收檔案時間
 - 作業執行過久時
 - 等待時間過長時
 - 作業重新執行時
 - 未設定後續的排程日期

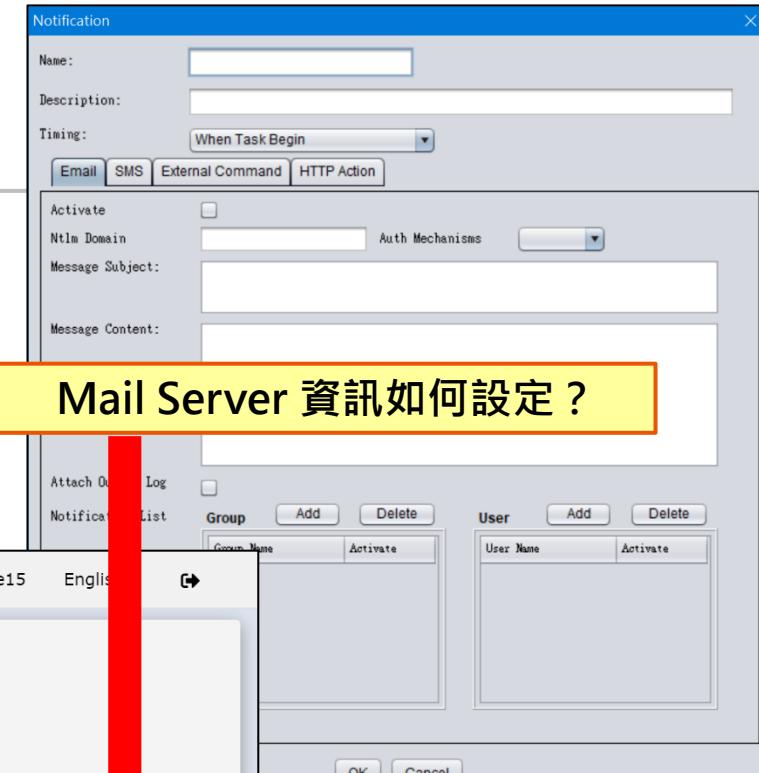


寄送 Notification 設定

- 電子郵件訊息環境設定

- 由 Root 或 Administrator 角色的使用者於 Admin UI -> System -> Configuration 中進行設定。

The screenshot shows the Trinity Admin UI interface. On the left, there's a sidebar with various menu items like Account, User, Role, User Group, Resource, Schedule, Working Calendar, Frequency, Exclude Frequency, System, Configuration (which is selected and highlighted with a red box), Server Monitor, and Driver Manager. The main content area is titled 'Configuration'. It contains sections for 'Version ID' (4.1.1) and 'Redundant Server' (unchecked). Below that is the 'SMTP Setting' section, which is also highlighted with a red box. It has fields for 'Server' (192.168.17.113), 'Account' (trinity), and 'Password' (*****). There's also an 'Authentication Setting' section with 'Account Authentication' set to 'Trinity' and a 'Password Policy' button. At the bottom are 'Reset', 'Cancel', and 'Save' buttons.



寄送 Notification 設定

- 訊息收件者設定
 - 根據 Admin UI 當中使用者帳號設定值(Admin UI -> Account -> User)。

The image displays two screenshots of the Trinity Admin UI. The left screenshot shows the 'Notification' configuration screen, which includes fields for Name, Description, Timing (set to 'When Task Begin'), and a list of recipients. The right screenshot shows the 'User - Edit' screen, where a user named 'trainee1' is being configured. The 'User' tab is selected in the sidebar, and the 'User Name' field is set to 'trainee1'. A red arrow points from the 'User' dropdown in the 'Notification' screen to the 'User' tab in the 'User - Edit' screen, highlighting the relationship between the two.

收件者的連絡資訊為何？

Notification

Name:

Description:

Timing: When Task Begin

Email SMS External Command HTTP Action

Activate NtIbm Domain Auth Mechanisms

Message Subject:

Message Content:

Attach Output Log Notification List

Group Add Delete User Add Delete

User Activate

User Name:
Trinity Super User
trainee1
trainee10
trainee11
trainee12
trainee13
trainee14
trainee15
trainee16
trainee17
trainee18

Add Cancel

Trinity

Account User Role User Group Resource

User Search For Name

User Name User ID

trainee1 trainee1

User - Edit

* User ID: trainee1 Activate

Description:

* User Name: trainee1 Default Language: English

User Password: SSO ID:

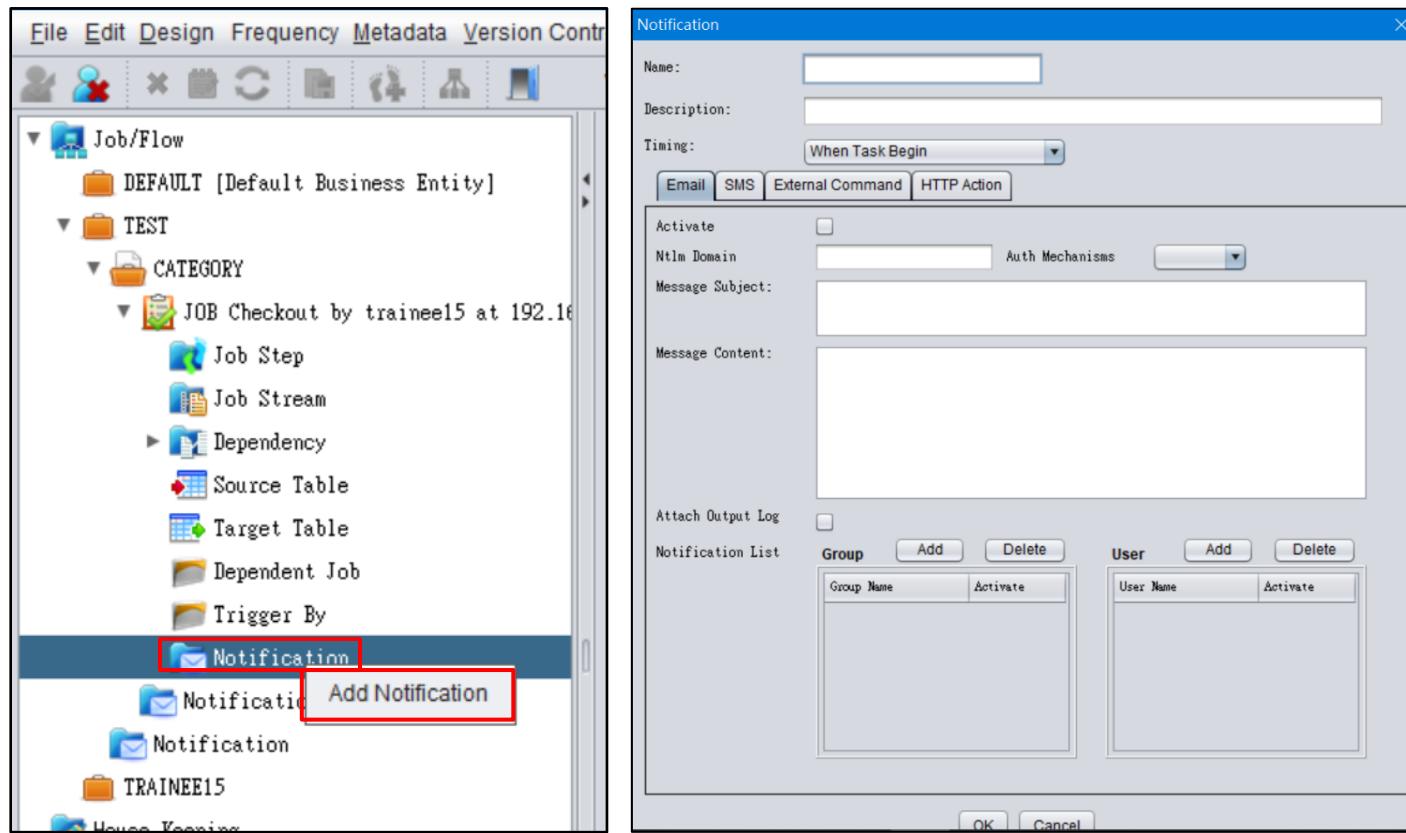
Confirm Password: Local Account:

Mobile Number: Only For Execution:

Email:

Notification - 新增

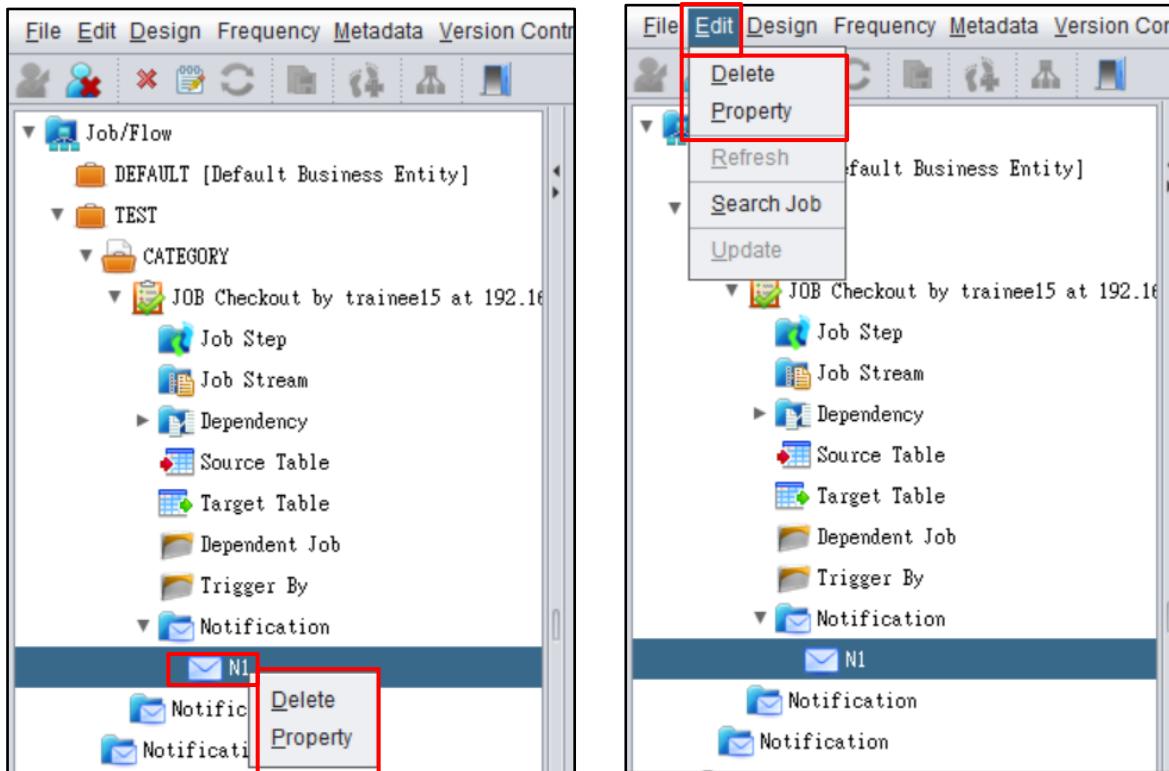
- 於 JF Designer 新增 Notification
 - 於樹狀視圖區中先選擇目標 Job 或 Category 或 Business Entity 的“ Notification” 後以滑鼠右鍵開啟選單並點選“ Add Notification” 進行。



Notification - 編輯、刪除

- 於 JF Designer 編輯、刪除 Notification

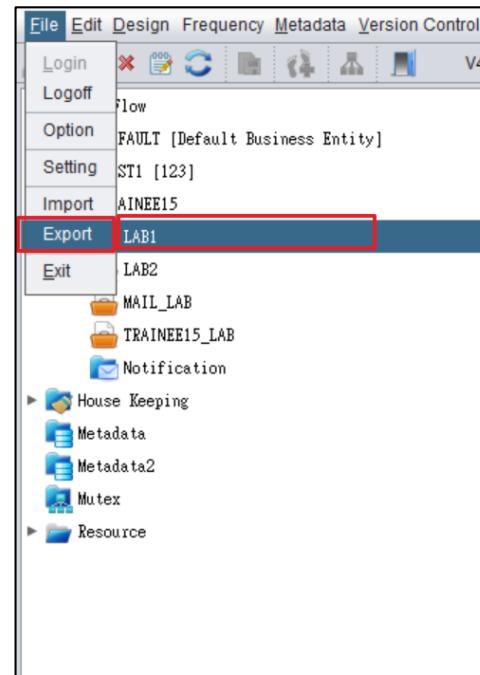
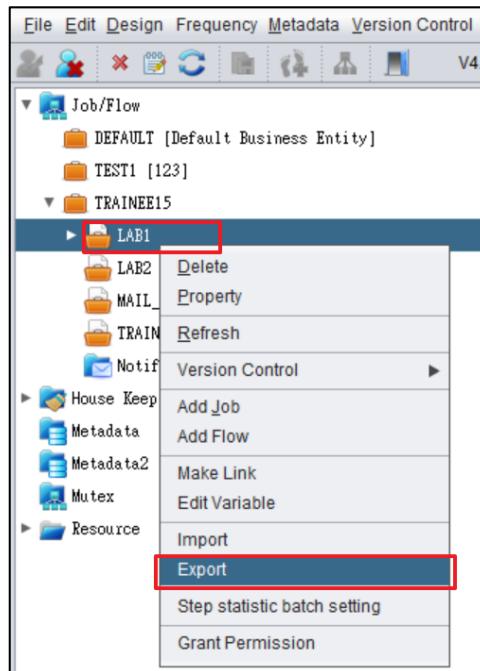
- 於樹狀視圖區中先選擇目標 Notification 後以滑鼠右鍵開啟選單並點選” Property” 或” Delete” ，或於工具列” Edit” 選單中點選” Property” 或” Delete” 進行。



附錄10–備份

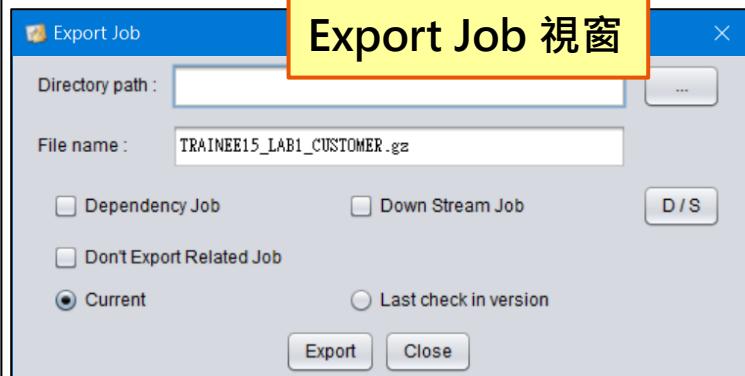
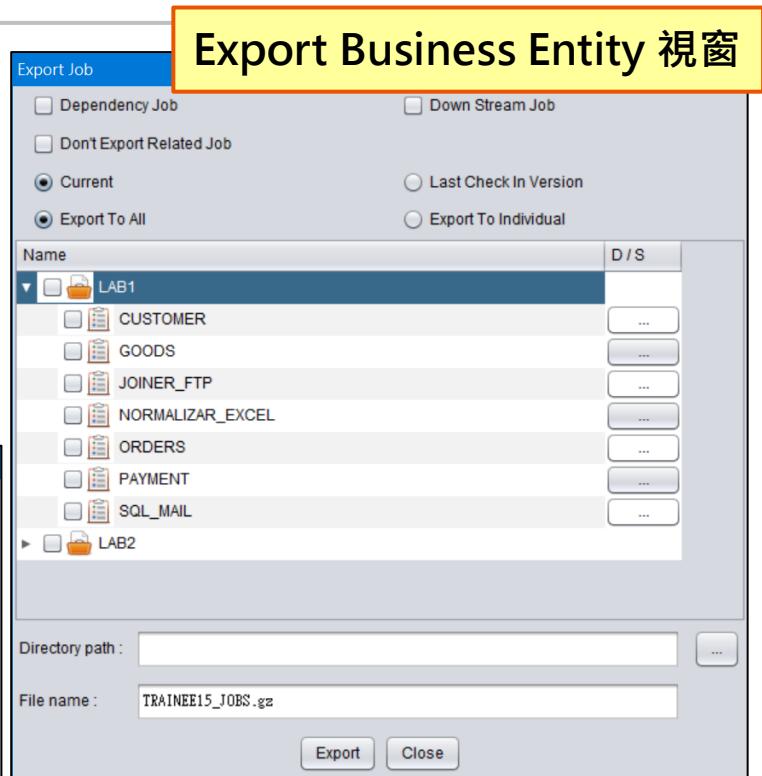
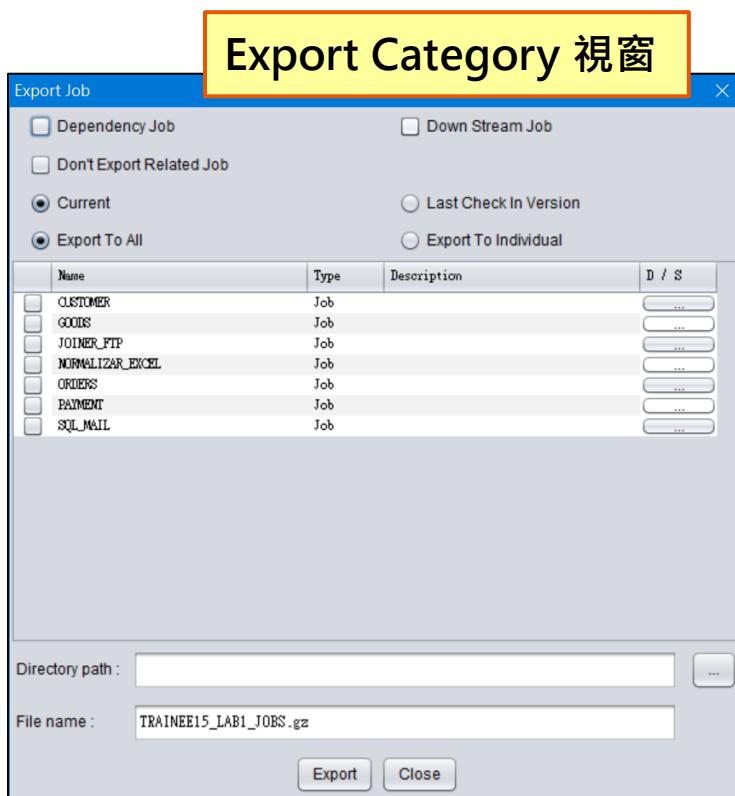
備份 - 定義檔備份

- 透過備份功能(Export/Import) · 可以輕鬆將 Trinity 上所有的設計完整保留，同時利用此方式，也能輕易的完成程式上版。
- 分為 Job/Flow 的備份及 Resource 的備份。
- Job/Flow 的備份
 - 於 JFDesigner 樹狀視圖區中點選目標 Job 或 Category 再以滑鼠右鍵開啟選單並點選” Export” · 或於工具列” File” 選單中點選” Export” 進行。



Export Job/Flow

- 承上頁，依據備份目標的作業階層，開啟不同備份畫面。
- 設定完畢後按下“Export”，產生匯出檔。

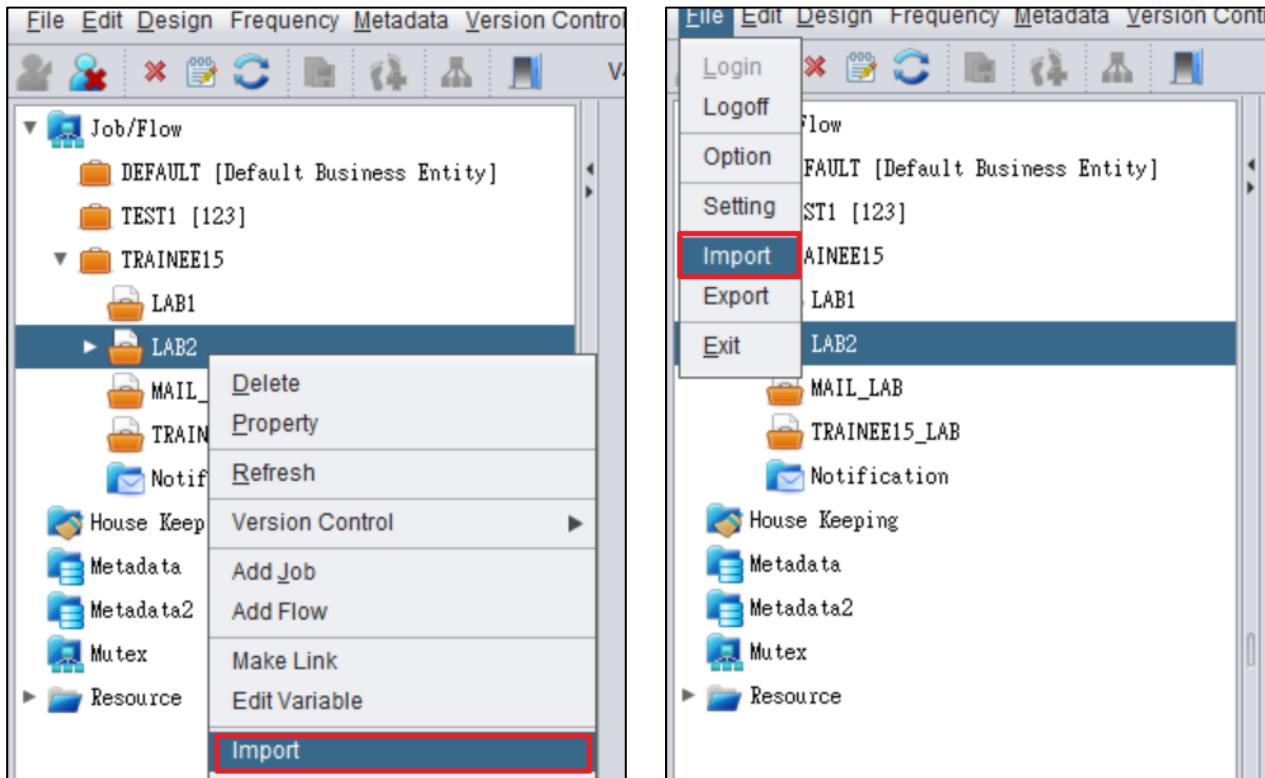


Export Job/Flow 選項功能說明

- 選項功能說明
 - Dependency Job：勾選則會匯出 Job Dependency 設定及其相關的 Job。
 - Down Stream Job：勾選則會匯出 Job Stream 設定及其相關的 Job。
 - Don't Export Related Job：勾選則不會匯出與自身 Dependency/Job Stream 相關的 Job。
 - Current：依照當時設計的 Job 作匯出。
 - Lask check in version：依照 Job 最新版的 check in 內容匯出。
 - Export to all：會將所有勾選的 Job 壓縮成一個 gz 格式檔案。
 - Export to individual：會將每個勾選的 Job 分別壓縮成獨立的 gz 格式檔案。
 - 「D/S」按鈕：可檢視該筆 Job 的 Dependency/Job Stream 關係。
 - 如欲將 Category 所開啟的頁面中所有 Job 一次全選，可點擊標題欄位當中第一格(空白格)，則有全選效果。
 - Directory path：指定匯出檔的放置路徑，可自行輸入路徑或點選「...」路徑選擇按鈕。
 - File Name：可自行輸入檔名或使用預設檔名(副檔名需為 .gz)

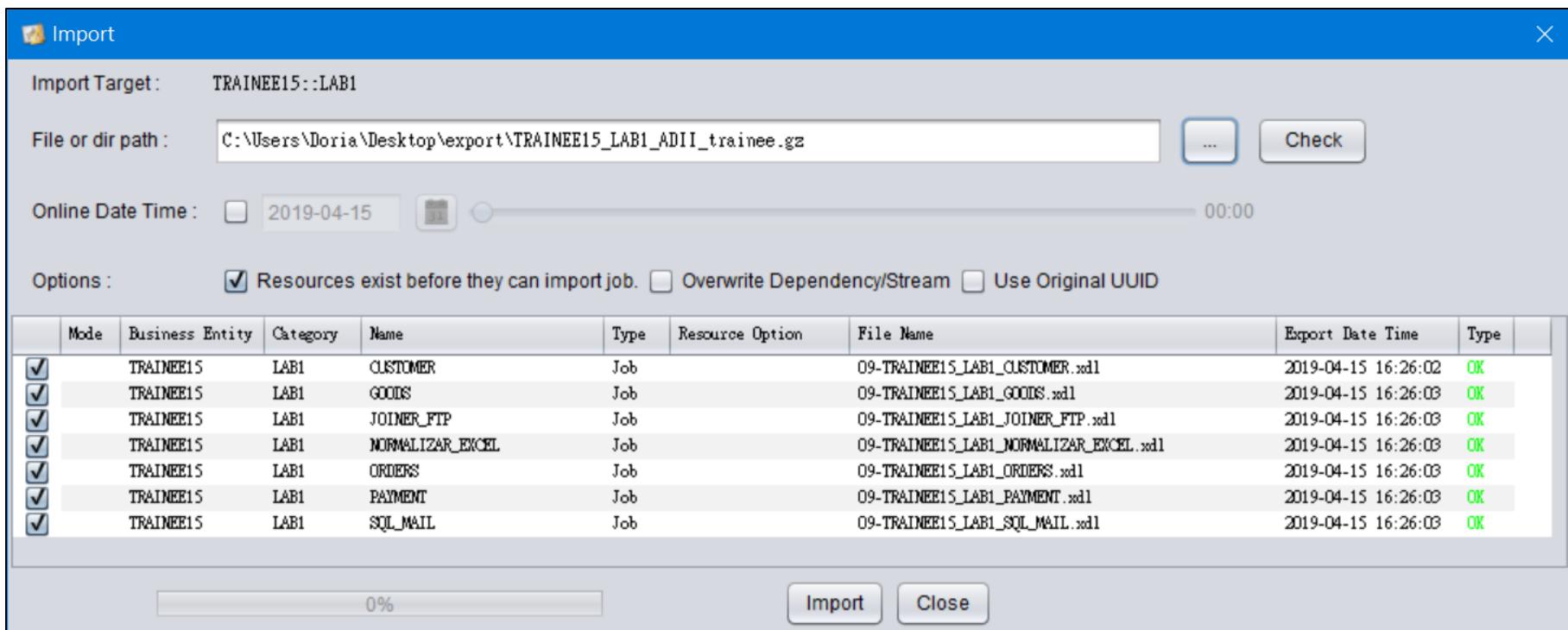
Import Job/Flow

- 取得匯出檔之後，再匯入 (Import)至目標
 - 於 JF Designer 樹狀視圖區中點選欲匯入 Job 的 Business Entity 或 Category，再以滑鼠右鍵開啟選單並點選” Import”，或於工具列” File” 選單中點選” Import” 進行。



Import Job/Flow

- 開啟 Import 視窗後，於“File or dir path”選取匯出檔，即會讀出匯出檔內容顯示於視窗當中。

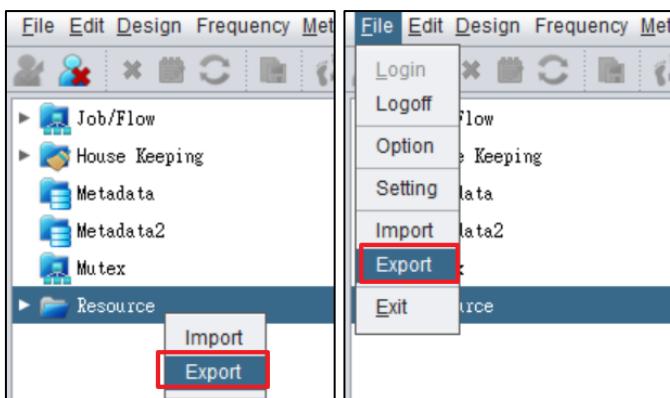


Import Job/Flow 選項功能說明

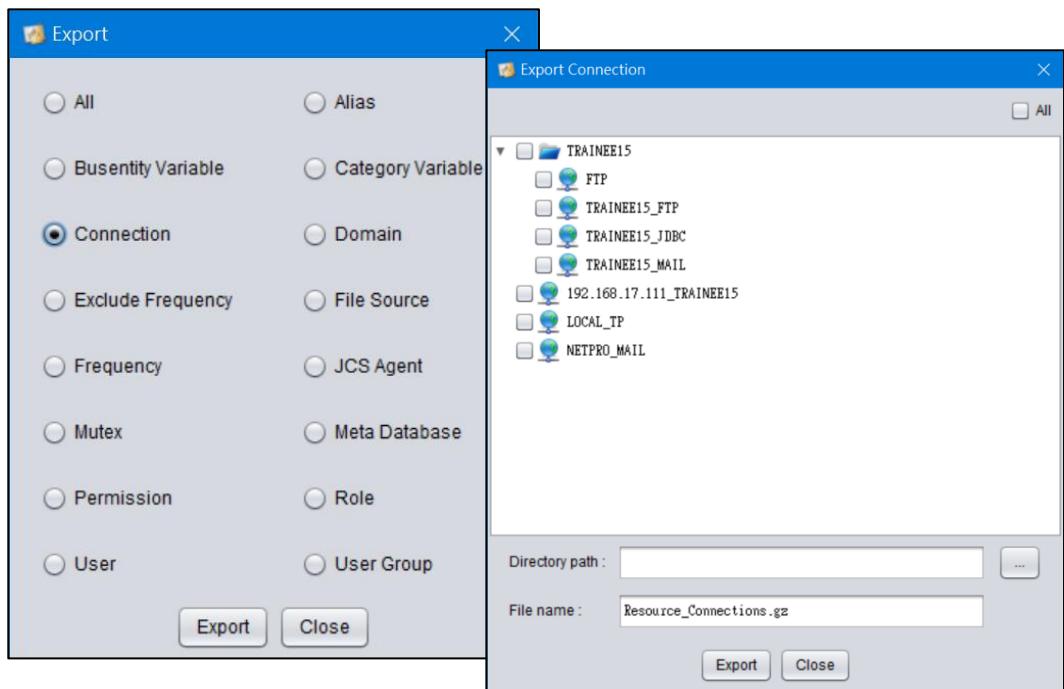
- 選項功能說明
 - Online Date Time：若勾選則此批匯入的作業其「Online Date Time」設定值將會一併調整。
 - Resource exist before they can import job：勾選可於匯入前檢查目的端是否具備來源端所需使用之相同名稱的 Resource。
 - Overwrite Dependency/Stream：勾選則會以來源端 Job 的 Dependency、Job Stream 設定進行異動。
 - Use Original UUID：勾選表示匯入的作業會以來源端所匯出之 UUID 建立在目的端當中。若來源端所匯出之 UUID 已存在於目的端，則即使來源端與目的端的 Job Name 並不同，結果仍會將目的端該 UUID 的 Job 進行 Job 異動。
- 表格中的細項：
 - Mode：「Add」代表目的端不存在此項；「Update」代表目的端存在此項但與來源端內容不同；若未顯示則代表目的端存在此項目與來源端內容一致。
 - Resource Option：此欄供 Import Resource 時使用。Import Job 時不須理會此欄。
 - File Name：顯示來源端的檔案項目。
 - Type：Import 完畢後才會呈現，若顯示「Diff」代表 Import 結果有異動目的地端內容；若顯示「OK」代表目的端內容無異動。

Export Resource

- Resource 的備份
 - 於 JF Designer 樹狀視圖區中點選“Resource”，再以滑鼠右鍵開啟選單並點選“Export”，或於工具列“File”選單中點選“Export”進行。
 - 預設只有 Root 及 Administrator 角色的使用者才可以使用此功能，可授權其他使用者或角色使用。
 - 開啟 Export 視窗後，選取各項目再點擊“Export”，開啟該項目操作視窗。

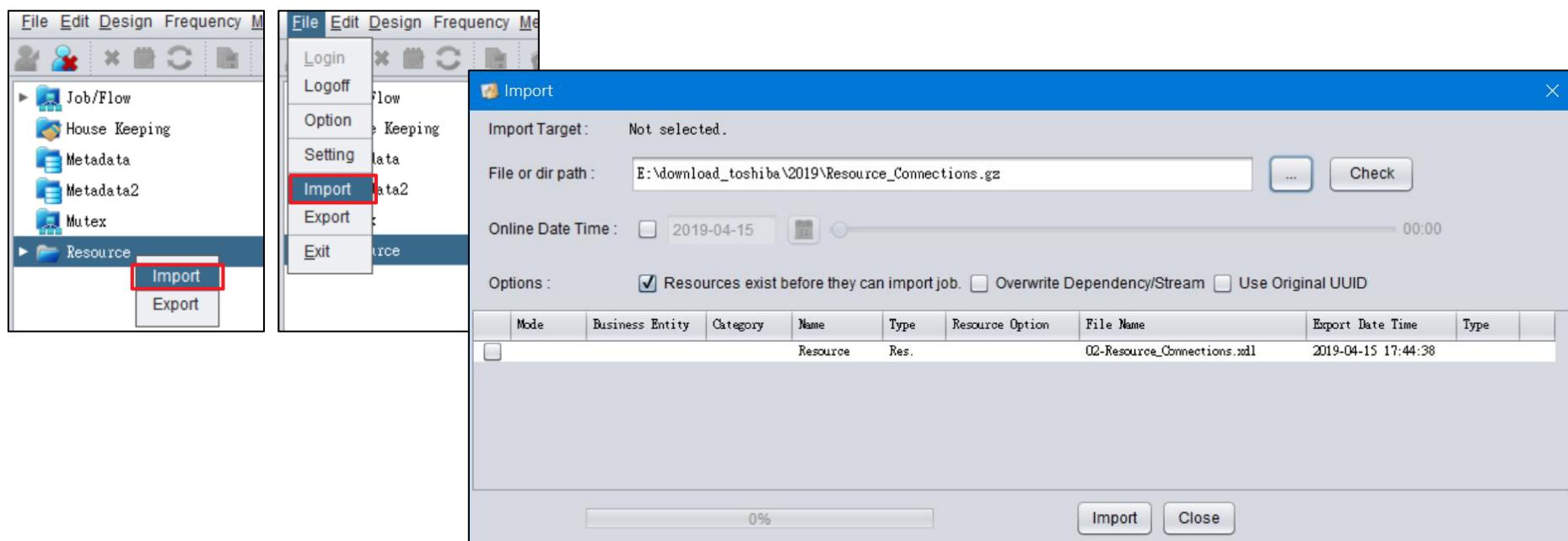


註：“All”項目僅開放Root及Administrator 使用



Import Resource

- 取得匯出檔之後，再匯入 (Import)至目標
 - 於 JF Designer 樹狀視圖區中點選“Resource” 再以滑鼠右鍵開啟選單並點選“Import”，或於工具列“File” 選單中點選“Import” 進行。
 - 預設只有 Root 及 Administrator 角色的使用者才可以使用此功能，可授權其他使用者或角色使用。
 - 開啟 Import 視窗後，於“File or dir path” 選取匯出檔，即會讀出匯出檔內容顯示於視窗當中。



Import Resource 參數

- 在進行 Resource Import 時，可搭配下列參數使用：
 - o (overwrite) : 會把原本存在的一律覆蓋
 - a (add) : 只會新增，如果已存在則不會新增
 - n (no change) : 不做任何變更
 - u (update and insert) : 已存在的會更新，不存在的會新增，不會刪除原本既有的
- 使用範例：“Import項目:參數”
 - conn:o
 - fq:u

Import 項目	設定使用名稱	Import 項目	設定使用名稱
alias	al	agent	ag
business entity variable	bev	mutex	mu
connection	Conn	permission	pm
domain	dm	role	ro
exclude frequency	exfq	user	us
frequency	fq	user group	group(gp)
filesource	fs	Import Job	all

Pluginlet 作業設計

Pluginlet 作業設計

- **Pluginlet**
 - 為預先定義一組通用的 Plugin 集合，當 Pluginlet 建立完畢後可供多個作業的 DM Step 利用；Pluginlet 的設計內容當中亦可以變數方式進行設計，故相同的 Pluginlet 在不同的作業當中可達到不同的執行結果，提高作業的設計效率及維運工序。
 - 提供版本控管、權限管理、匯出匯入(Export/Import) 等功能。

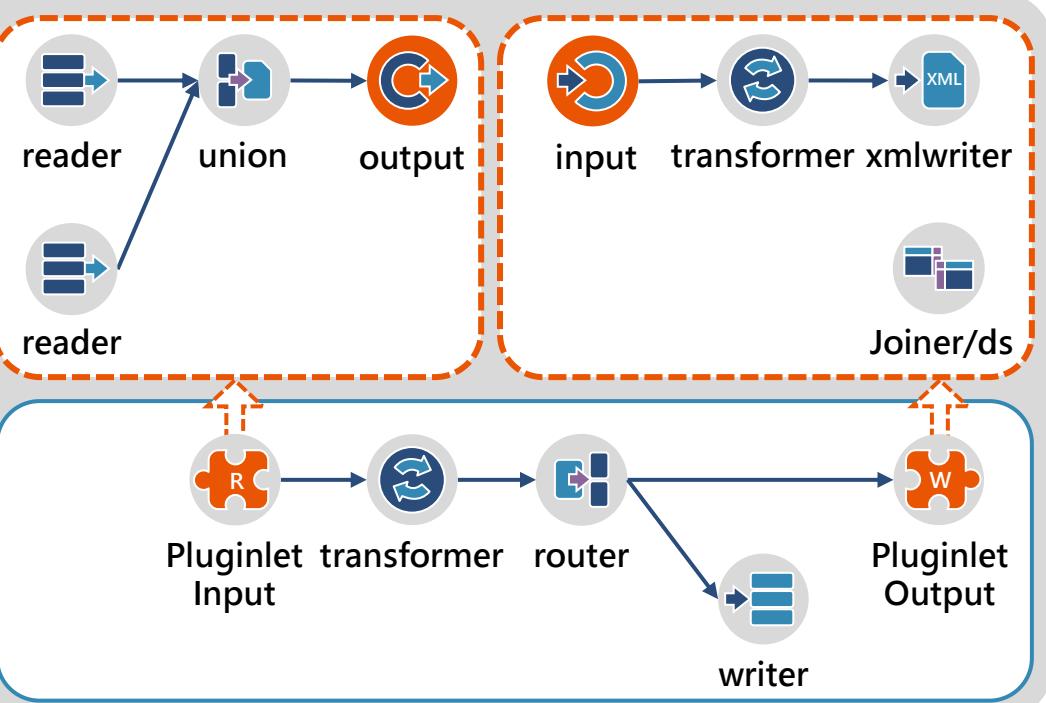
Pluginlet 作業設計範例(1)

採用 Pluginlet
的設計型態

Pluginlet
可被多個作
業利用

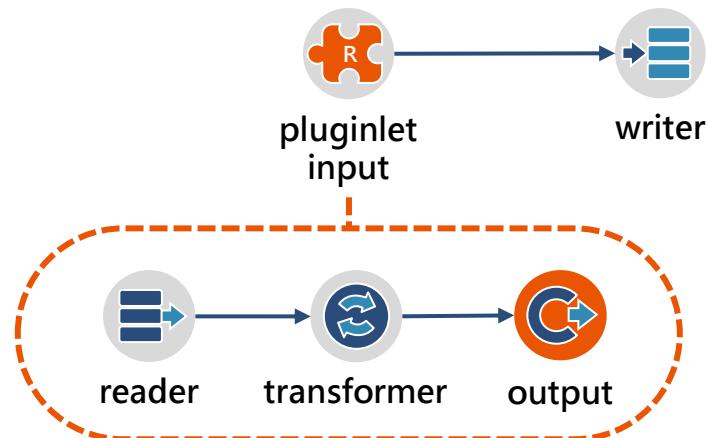
運用
Pluginlet
使作業簡化

一般 ETL 作業
的設計型態

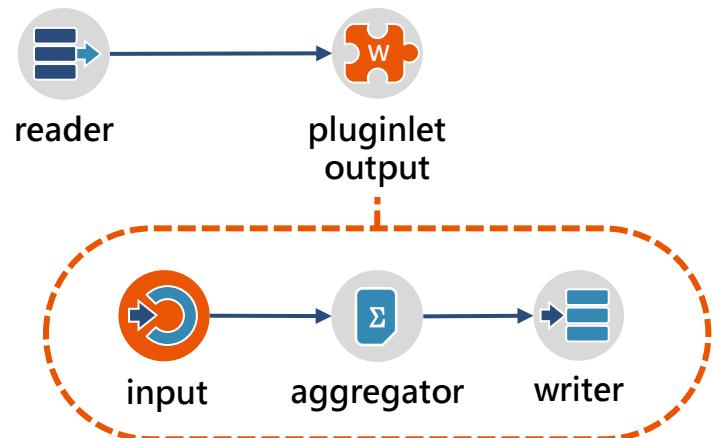


Pluginlet 作業設計範例(2)

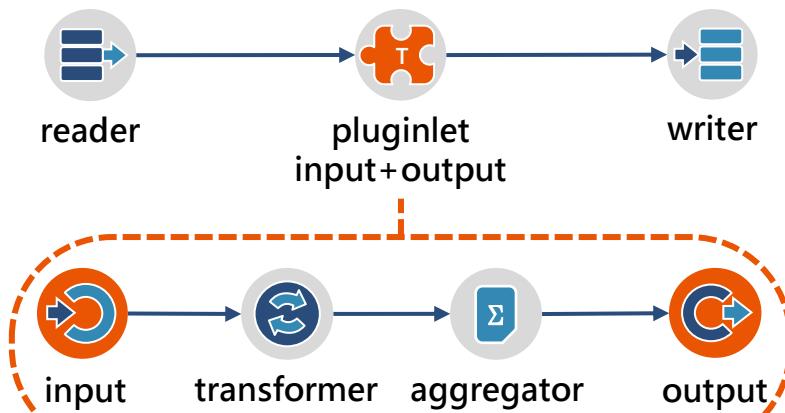
例一：Input 類型



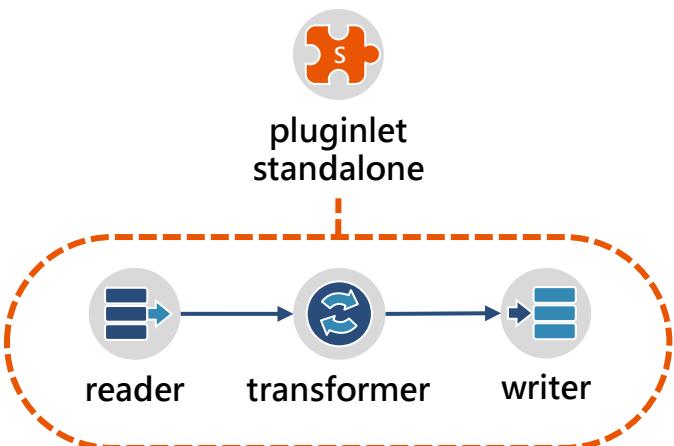
例二：Output 類型



例三：Input + Output 類型



例四：Standalone 類型



Pluginlet 建置類型

- Pluginlet 建置種類分為四種類型

- **Input 類型**

- 可從指定的資料來源中將資料讀取並組合成內部可辨識的資料物件(DMRecord) · 並將資料物件寫入至其中的Data Queue · 再輸出至後續的 Plugin 進行處理 (最多可支援 8 個輸出) 。



- **Output 類型**

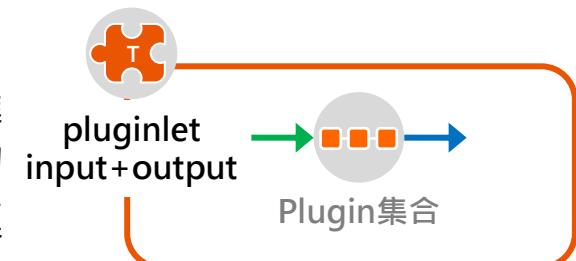
- 可從一端的輸入Data Queue中讀取資料物件 (最多可支援 8 個輸入) · 將資料物件中包含的資料寫入至指定的資料目標中 。



Pluginlet 建置類型

- **Input + Output 類型**

- 可從一端的輸入Data Queue中讀取資料物件（最多可支援 8 個輸入），經過input + output單元當中所設計的轉換過濾或處理邏輯後，將處理後的資料物件寫入至另一端的Data Queue中，再輸出至後續的 Plugin 進行處理（最多可支援 8 個輸出）。



- **Standalone 類型**

- 可直接讀取資料物件並依照standalone單元的設計內容進行轉換，最後寫入到指定的資料目標中。

