

AnyLink

Tmax Adapter User Guide

AnyLink 7



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About This Document

Intended Audience

This document is intended for developers and system administrators who want to use Tmax AnyLink[®] (hereafter AnyLink) to model channel business processes. It includes basic concepts, additional knowledge, usage, and examples of using Tmax adapter for AnyLink projects or business transaction.

Required Knowledge

To fully understand this guide, users need to have an understand of the following:

- JEUS
- AnyLink (refer to *AnyLink Studio Guide* and *AnyLink WebAdmin Guide*)

Document Scope

This guide does not contain information about Java EE or Java specifications. For such information, refer to the relevant Java documents.

This guide only covers how to create or configure adapters through AnyLink Studio and WebAdmin. For more information, refer to *AnyLink Studio Guide* and *AnyLink WebAdmin Guide*.

Document Organization

This guide consists of 3 chapters.

Descriptions of each are as follows:

- Chapter 1: Introduction

Describes how an AnyLink Tmax adapter works.

- Chapter 2: Environment Configuration

Describes how to configure an AnyLink Tmax adapter and outbound rule.

- Chapter 3: Examples

Describes examples of using an AnyLink Tmax adapter.

Conventions

Convention	Meaning
<AaBbCc123>	Program source code file name
<Ctrl>+C	Hold down the Ctrl key and press the C key
[Button]	Name of a GUI button or menu
Bold	Emphasis
<i>Italics</i>	Reference to another guide
" " (Double quotation marks)	Reference to a chapter or section in this or another guide
'Input'	User input on the screen
Hyperlink	Email account, website, or a reference to other chapters or sections
>	Proceeding order of menu
+----	Files or directories exist in this directory
----	Files or directories do not exist in this directory
<div>Note</div>	Reference or caution
[Figure 1.1]	Figure caption
<div>AaBbCc123</div>	Commands, screen output after executing command, or sample code
{ }	Required items
[]	Optional items
	Selective items

System Requirements

Category	Requirement
Platform	Solaris 9-11
	HP-UX 11.x, 11i, 11iV2
	AIX 5L, 6L, 7L
	Linux Kernel 2.6 or later
	Windows 7 (32-bit, 64-bit)
Server	More than 1 GB RAM recommended (At least 512 MB)
	At least 500 MB hard disk space
Studio	Windows 7 (64-bit)
	1 GB RAM recommended (At least 512 MB)
	At least 500 MB hard disk space
Remote Agent	512 MB RAM recommended (At least 256 MB)
	At least 512MB hard disk space
Software	JDK 7.0
	JEUS 7 (Fix#3)
Supported Browsers for WebAdmin	IE 10 or later
	Chrome 41 or later
Supported Databases	Oracle 10g, 11g, 12c
	Tibero 6 FixSet03 or later

Related Documents

Document	Description
AnyLink Installation Guide	Describes how to install AnyLink Server, Studio, and Remote Agent.
AnyLink Studio Guide	Describes how to create and deploy flow services and various adapter rules through Studio.
AnyLink WebAdmin Guide	Describes how to manage systems through WebAdmin.

Chapter 1. Introduction

This chapter describes how an AnyLink Tmax adapter works.

1.1. Overview

A Tmax adapter supports connection to Tmax, a TmaxSoft middleware.

1.2. Environment Configuration

The following item is required to use the Tmax adapter in AnyLink.

- Tmax library: webt.jar, webtasync.jar (included in the AnyLink solution).

Place the required library in the following directory.

```
${DOMAIN_HOME}/lib/application/
```

1.3. Tmax Adaptor

A Tmax adapter can have Tmax endpoints. A Tmax endpoint has server mode and client mode, depending on the connection method.

- Server mode

Waits for a Tmax connection to arrive at the selected port.

- Client mode

Connects to a Tmax server by using a specified IP/host and port. A Tmax client always maintains connection.

Chapter 2. Environment Configuration

This chapter describes how to configure AnyLink Tmax adapter and outbound rule.

2.1. Adapter Configuration

Configure a Tmax adapter in WebAdmin.

Note

For information about accessing and using AnyLink WebAdmin, refer to *AnyLink WebAdmin Guide*.

Log in to AnyLink WebAdmin through a web browser, and go to **[System] > [Adapter]** to view the adapter list.

[Figure 2.1] Adapter List Screen

No	Biz System Name	Adapter Type	Adapter Name	Version	Last Updated	Owner
1	ALT_BIZSYS	WebService	WS_ADT_Serial	1	2019-05-28 14:05:55	admin(admin)
2	ALT_BIZSYS	FTP	FTP_ADT	1	2019-05-20 15:06:36	admin(admin)
3	ALT_BIZSYS	TCP	TCP_ADT_188763	1	2019-05-14 17:09:23	admin(admin)
4	ALT_BIZSYS	HTTP	HTTP_ADT_PO	1	2019-05-07 19:37:36	admin(admin)
5	ALT_BIZSYS	ProObject	PO_ADT_TEST	1	2019-05-07 19:13:45	admin(admin)
6	ALT_BIZSYS	HTTP	HTTP_JSON	1	2019-01-16 16:33:35	admin(admin)
7	ALT_BIZSYS	TCP	ADT	1	2019-01-16 16:00:33	admin(admin)
8	ALT_BIZSYS	TCP	Non_Adt	1	2019-01-16 15:53:59	admin(admin)
9	ALT_BIZSYS	vbXML	vbxml_Adt	1	2019-01-10 15:01:27	admin(admin)
10	ALT_BIZSYS	FILE	EP_CMML_RECV	1	2019-01-08 13:34:32	admin(admin)

Click **[Add]** from the **Adapter List** screen to add an adapter. Enter the required information in the **Add Adapter** screen, and then click **[Save]**. If successful, the message "Created successfully." is displayed.

[Figure 2.2] Add Adapter Screen

Basic Settings

Adapter ID* Adapter Name* Adapter Type*

Description Biz System Name*

Deployment Purpose

Advanced Settings

Outbound Thread Pool ID

- **Basic Settings**

Item	Description
Adapter ID	Adapter ID. Only alphanumeric and special (-, _) characters are allowed, and the length must be between 3 and 30 characters. Must be unique within the same business system.
Adapter Name	Adapter name. Only Korean, alphanumeric, and special (-, _) characters are allowed, and the length must be between 3 and 30 characters.
Adapter Type	Select 'Tmax' from the list.
Description	Adapter description. Optional.
Biz System Name	Business system to deploy adapter to.

- **[Advanced Settings] Tab**

Item	Description
Outbound Thread Pool ID	Thread pool ID to be used during an outbound service call. If an ID different from the thread pool executed in the engine is specified, then the thread is changed to this thread pool during an outbound service call. Use this option when the user wants to separate thread pools by each adapter so that there is no effect between different adapters.

2.2. Endpoint Configuration

Select the **[System] > [Adapter]** menu of WebAdmin to display the adapter tree on the left. Click the **[Endpoint List]** tab in the **Adapter Details** screen to display the endpoint list of the adapter.

[Figure 2.3] Adapter Details - [Endpoint List]

Adapter Details

Basic Settings

Adapter ID* Tmax_IN_ADT Adapter Name* Tmax_IN_ADT Adapter Type* Tmax

Description tmax inbound adapter Biz System Name* ALT7_BIZSYS

Deployment Purpose

Advanced Settings Endpoint Group List **Endpoint List**

No	Endpoint ID	Endpoint Name	Direction	Version	Status	Last Updated	Owner
1	TMAX_IN_EP	TMAX_IN_EP	Inbound	3	✱	2019-05-28 15:46:53	admin(admin)

+ Add - Del ▶ Start ■ Stop

Click **[Add]** below the **[Endpoint List]** tab to go to the **Add Endpoint** screen. Enter the required items, and then click **[Save]** to add the endpoint. Check the result from the tree on the left.

- **Basic Settings**

The following shows the **Basic Settings** section of the Add Endpoint screen.

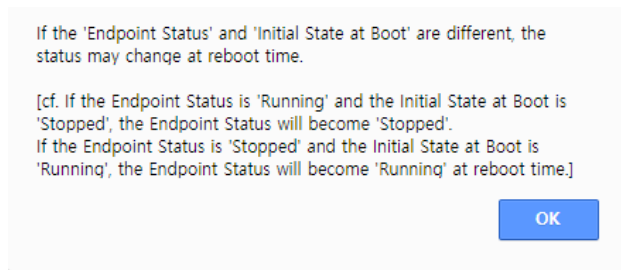
[Figure 2.4] Add Endpoint Screen - Basic Settings

The screenshot shows the 'Basic Settings' section of the 'Add Endpoint' screen. It contains several input fields and dropdown menus:

- Biz System Name:** Text input field containing 'AL7_BIZSYS'.
- Adapter Type:** Text input field containing 'Tmax'.
- Adapter Name:** Text input field containing 'Tmax_IN_ADT'.
- Endpoint ID*:** Empty text input field.
- Endpoint Name*:** Empty text input field.
- Endpoint Group Name:** Empty text input field.
- Endpoint Status:** Dropdown menu with 'Running' selected.
- Initial State at Boot:** Dropdown menu with 'Running' selected.
- Direction:** Dropdown menu with 'Inbound' selected.
- Description:** Empty text input field.
- Deployment Purpose:** Empty text input field.

Item	Description
Endpoint ID	Endpoint ID. Only alphanumeric and special (-, _) characters are allowed, and the length must be between 3 and 30 characters. Must be unique within the same adapter or endpoint group.
Endpoint Name	Endpoint name. Only Korean, alphanumeric, and special (-, _) characters are allowed, and the length must be between 3 and 30 characters.
Endpoint Status	Initial endpoint status. <ul style="list-style-type: none"> – Running: endpoint is running. – Stopped: endpoint is stopped.
Initial State at Boot	Initial endpoint state at boot time. <ul style="list-style-type: none"> – Running: endpoint is in Running state at boot time. – Stopped: endpoint is in Stopped state at boot time. <p>If the 'Endpoint Status' and 'Initial State at Boot' are different, a warning message ([Figure 2.5]) is displayed when stopping or restarting an endpoint.</p>
Direction	Endpoint's communication direction. <ul style="list-style-type: none"> – Inbound: endpoint for inbound messages. – Outbound: endpoint for outbound messages.
Description	Endpoint description. Optional.

[Figure 2.5] "Initial State at Boot" and "Endpoint Status" Mismatch Message



• [Connection Info] Tab

The following shows the [Connection Info] tab of the Add Endpoint screen.

[Figure 2.6] Add Endpoint Screen - [Connection Info] - Server

[Figure 2.7] Add Endpoint Screen - [Connection Info] - Client

– Connection Mode

Item	Description
Connection Mode	Connection method in which an endpoint runs. <ul style="list-style-type: none">– Server: An endpoint runs in server mode.– Client: An endpoint runs in client mode.

Item	Description
Max Thread Count	<p>Maximum work thread count.</p> <p>For an outbound adapter, messages sent through a queue are processed by the work thread allocated in each adapter. As a result, the work thread count refers to the number of messages that are simultaneously processed. However, if the number of threads is too large, then overhead increases from frequent context exchanges. As a result, the user must set an appropriate value.</p>
Default Encoding	<p>Default encoding to be used in an endpoint. The encoding set in the message is given priority over the default encoding. If no encoding is set in the message and the endpoint, then the system's default encoding is used.</p>

– **Address**

Item	Description
IP/Host	<p>IP/host.</p> <ul style="list-style-type: none"> – Client: IP/host to be connected. – Server: Node IP/host.
Port	<p>Port.</p> <ul style="list-style-type: none"> – Client: Port number to be connected. – Server: Port number to listen.

– **Timeout/Number of Connections**

Item	Description
Read Timeout	<p>Maximum wait time for a response after sending a request message to a Tmax server. If the response message is not received after this time has expired, then the adapter handles this message as an exception. Request messages received after this time are ignored. This option can be set only in a client type. (Default value: 30 sec)</p>
Connection Timeout	<p>Maximum wait time for a Tmax server to get a connection. This option can be set only in a client type.</p>
Max Connections	<p>Maximum number of connections between Tmax's JEUS Gateway and an endpoint.</p>

Item	Description
	This value should be set larger than the MAX_CLH * CPC value in the Tmax server configuration file.
Server Alive Check Period	<p>Interval for sending a ping message to a Tmax server. To check whether the server is alive, it needs to set both Server Alive Check Period and Server Alive Check Timeout.</p> <p>There is no default value, and the alive check works only when set. This option can be set only in a client type.</p>
Server Alive Check Timeout	<p>Maximum wait time for a response message. If no response message is received before this timeout expires, then a ping message will be sent. If there is no response to the ping message for this timeout * 3, then it is determined that the connection has been disconnected.</p> <p>There is no default value, and the alive check works only when set. This option can be set only in a client type.</p>

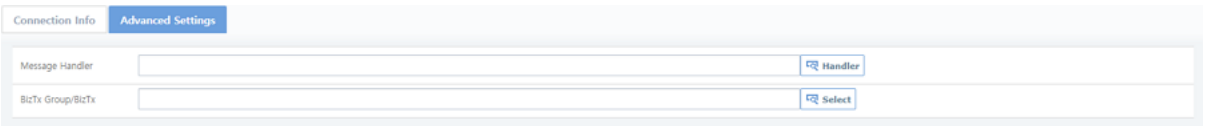
– **Failover Server** (Can be set only in the Client mode)

Item	Description
IP/host	IP/host of the failover server to be used when failed to connect.
Port	Port of the failover server to be used when failed to connect.
Failback Period	<p>Set this option when performing a failover using the failover server and then performing a failback to the original server. If this period expires, then a connection is attempted to the original server. To use the failback function, it needs to set both Failback Period and Failback Timeout.</p> <p>There is no default value, and the failover works only when set.</p>
Failback Timeout	<p>Timeout interval when connecting to the original server.</p> <p>There is no default value, and the failover works only when set.</p>

• **[Advanced Settings] Tab**

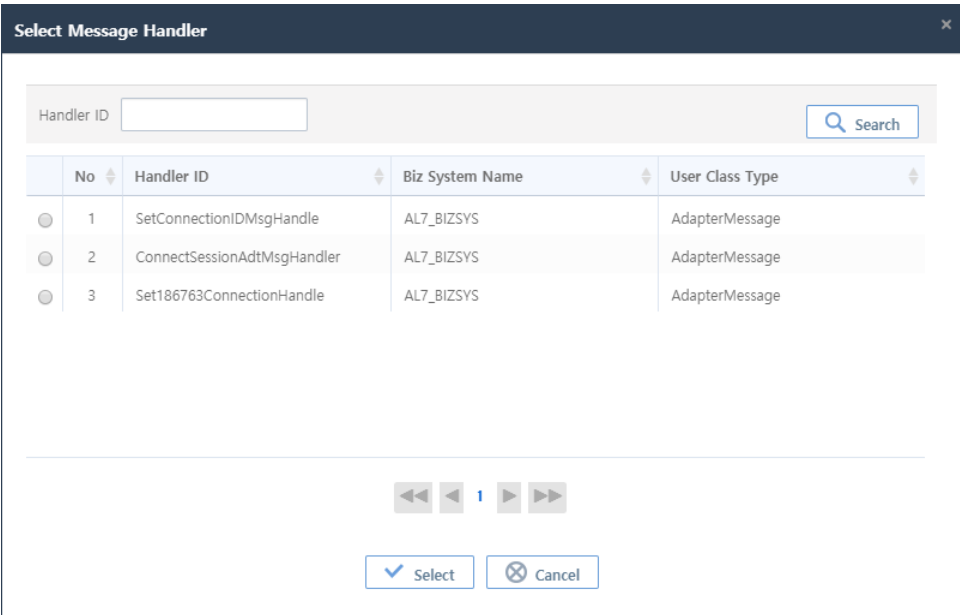
The following shows the **[Advanced Settings]** tab in the Add Endpoint screen.

[Figure 2.8] Add Endpoint Screen - [Advanced Settings]



Item	Description
Message Handler	Select a message in the screen ([Figure 2.9]) displayed when clicking [Handler].
BizTx Group/BizTx	Select the transaction for the message that the endpoint must handle when receiving messages.

[Figure 2.9] Select Message Handler



No	Handler ID	Biz System Name	User Class Type
1	SetConnectionIDMsgHandle	AL7_BIZSYS	AdapterMessage
2	ConnectSessionAdtMsgHandler	AL7_BIZSYS	AdapterMessage
3	Set186763ConnectionHandle	AL7_BIZSYS	AdapterMessage

2.3. Outbound Rule Configuration

This section describes how to configure a Tmax outbound rule in AnyLink Studio.

Note

For more information about AnyLink Studio, refer to *AnyLink Studio Guide*.

In the Studio BizTx Group navigator, right click on a **BizTx/BizTx Group** and go to **[New] > [Outbound Rule] > [Tmax Outbound Rule]** to open the following **Create Tmax Outbound Rule** screen. Enter the required items, and then click **[Finish]**.

[Figure 2.10] Create Tmax Outbound Rule Screen

Create Tmax Outbound Rule
Creates a Tmax Outbound Rule.

Folder

- ▼ Tutorial1 (AL7_BIZSYS)
 - Shared Library
 - ▼ tmaxCase1 [3]
 - ReqInHeader.umsg
 - ReqOutHeader.umsg
 - ResInHeader.umsg
 - ResOutHeader.umsg
 - > tx01 [3]

Outbound ID: TmaxOutboundRule

Outbound Name: TmaxOutboundRule

Buttons: ? Finish Cancel

Item	Description
Outbound ID	Outbound rule ID. Only alphanumeric and special (_) characters are allowed, and the first character must be an alphabet character. Must be unique in the same BizTx node.
Outbound Name	Outbound rule name. Only Korean, alphanumeric, and special (-, _) characters are allowed. Must follow the XML naming conversion.

After an outbound rule is created, detailed settings are displayed in the following tabs.

[Figure 2.11] Outbound Rule Definition Screen

TMAX Outbound Rule

Define Outbound Rule

- Protocol: TMAX
- Outbound Rule ID: TmaxOutbound
- Outbound Rule Name: TmaxOutbound
- Request Timeout(ms): 10,000
- Endpoint (Group): TMAX_OUT_EP

Description

- Tmax Response Option: true
- Tmax XA Transaction: false
- Tmax Service Timeout(ms): 5000
- Tmax Service ID: TEST_SERVICE
- ByPass: ☐

Request Message

Name	Message ID	Type ID	Select Array
ReqOutHea...	ReqOutHeader	ReqOutHeaderFixedLength	Off
ReqOutBody	ReqOutBody	ReqOutBodyFixedLength	Off

Response Message

Name	Message ID	Type ID	Select Array
Resin-Header	Resin-Header	Resin-HeaderFixedLength	Off
ResinBody	ResinBody	ResinBodyFixedLength	Off

● **Define Outbound Rule**

Item	Description
Outbound Rule ID	Outbound rule ID. Only alphanumeric and special (_) characters are allowed. Must be unique within the same BizTx node.
Outbound Rule Name	Outbound rule name. Only Korean, alphanumeric, and special (-, _) characters are allowed.
Description	Outbound rule description.
Request Timeout (ms)	Request processing timeout (positive integer). Timeout occurs if no connection or an outbound request response is received during the timeout period starting from the time when the outbound rule is called. Default value is 10000.
Endpoint (Group)	Endpoint or endpoint group in which the outbound rule will be added. Must be connected to the server.
Tmax Response Option	Select if a response is received from Tmax after a Tmax service call.
Tmax XA Transaction	Option to use XA transaction when calling a Tmax service.
Tmax Service Timeout (ms)	Service timeout when calling a Tmax service. It is recommended to set to a value less than the Request Timeout value. Can be set to -1, 0, and a positive integer value. The default value is -1 when creating an outbound rule. – -1: Follows the endpoint setting. – 0: Waits indefinitely.

Item	Description
	– Positive integer value: Waits as much as the set value.
Tmax Service ID	Tmax service ID to be called.

- **Define Outbound Rule Message**

Request message and normal response message can be defined for an outbound rule.

Item	Description
Request Message	Request message for the outbound rule.
Normal Response Message	Response message for the outbound rule.

Chapter 3. Examples

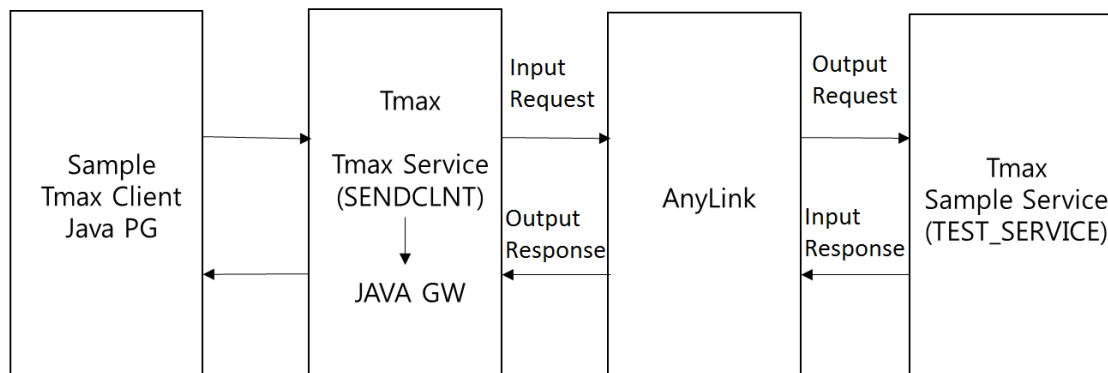
This chapter describes examples of using AnyLink Tmax adapter.

3.1. Overview

All used messages use the WebtStringBuffer method. For more information about Tmax and WebT, refer to the relevant Tmax guide.

The following shows the basic Tmax BizTx process.

[Figure 3.1] Basic BizTx Process



A BizTx is processed as follows:

1. A request message is sent to the Tmax SENDCLNT service via a sample Tmax Client Java program.
2. Tmax receives the message, and then sends it to AnyLink via a Tmax Java gateway.
3. AnyLink receives the message via an inbound adapter and then executes a service flow.
4. The service flow maps the request input message to the request output message.
5. The request output message is sent to the Tmax Server's TEST_SERVICE service via an outbound adapter.
6. The Tmax Server sends the response input message via the outbound adapter.
7. The service flow maps the response input message to the response output message.
8. The response output message is sent to the Java gateway via the inbound adapter.
9. The Java gateway sends the response output message to the sample Tmax client.

Message Components

The following are the components of the message used in the examples of this chapter.

- **Request Input**

- Header messages

Field Name	Description	Type	Size
kind_code	Type code	Char	4
tx_code	BizTx code	Char	4
date	Date	Char	8
id	ID	Char	10

- Body messages

Field Name	Description	Type	Size
branch_number	Branch number	Number	3
teller_number	Teller number	Char	5
name	Name	Char	10
account	Account	Char	12
data	Data	Char	50

- **Request Output**

- Header messages

Field Name	Description	Type	Size
tx_code	BizTx code	Char	4
id	ID	Char	10

- Body messages

Field Name	Description	Type	Size
name	Name	Char	10
account	Account	Char	12
data	Data	Char	50

- **Response Input**

- Header messages

Field Name	Description	Type	Size
return_code	Response code	Char	4
id	ID	Char	10

- Body messages

Field Name	Description	Type	Size
transactionDate	Response date	Char	8
transferType	Management information	Char	4

• Response Output

- Header messages

Field Name	Description	Type	Size
kind_code	Type code	Char	4
tx_code	BizTx code	Char	4
date	Date	Char	8
id	ID	Char	10

- Body messages

Field Name	Description	Type	Size
return_code	Response code	Char	4
transferType	Management information	Char	4

3.2. Creating an Adapter

Log in to AnyLink WebAdmin through a web browser, go to **[System] > [Adapter]**, and click **[Add]** below the **Adapter List** to go to the **Add Adapter** screen. For information about creating an adapter, refer to ["2.1. Adapter Configuration"](#). For information about accessing and creating business systems in AnyLink WebAdmin, refer to *AnyLink WebAdmin Guide*.

3.2.1. Creating an Inbound Adapter

The following is an example of creating a Tmax inbound adapter.

[Figure 3.2] Adding an Inbound Adapter

Add Adapter Adapter List

Basic Settings

Adapter ID* Adapter Name* Adapter Type*

Description Biz System Name*

Deployment Purpose

Advanced Settings

Outbound Thread Pool ID

• **Basic Settings**

Item	Value
Adapter ID	TMAX_IN_ADT
Adapter Name	TMAX_IN_ADT
Adapter Type	Tmax
Description	TMAX inbound adapter
Biz System Name	AL7_BIZSYS

• **[Advanced Settings] Tab**

Item	Value
Outbound Thread Pool ID	No

3.2.2. Creating an Outbound Adapter

The following is an example of creating a Tmax outbound adapter.

[Figure 3.3] Adding an Outbound Adapter

Add Adapter Adapter List

Basic Settings

Adapter ID* Adapter Name* Adapter Type*

Description Biz System Name*

Deployment Purpose

Advanced Settings

Outbound Thread Pool ID

• **Basic Settings**

Item	Value
Adapter ID	TMAX_OUT_ADT
Adapter Name	TMAX_OUT_ADT
Adapter Type	Tmax
Description	TMAX outbound adapter
Biz System Name	AL7_BIZSYS

- **[Advanced Settings] Tab**

Item	Value
Outbound Thread Pool ID	No

3.3. Creating an Endpoint

From the **[Adapter]** screen, click on an adapter and go to the **Adapter Details** screen. Click **[Add]** from the **[Endpoint List]** tab to go to the **Add Tmax Endpoint** screen. For more information about creating an endpoint, refer to ["2.2. Endpoint Configuration"](#).

3.3.1. Creating an Inbound Endpoint

The following is an example of creating a Tmax inbound endpoint.

- **Basic Settings**

[Figure 3.4] Adding an Inbound Endpoint - Basic Settings

Basic Settings

Biz System Name	AL7_BIZSYS	Adapter Type	Tmax	Adapter Name	Tmax_IN_ADT
Endpoint ID*	TMAX_IN_EP	Endpoint Name*	TMAX_IN_EP	Endpoint Group Name	
Endpoint Status	Running	Initial State at Boot	Running	Direction	Inbound
Description	Tmax inbound endpoint				
Deployment Purpose					

Item	Value
Endpoint ID	TMAX_IN_EP
Endpoint Name	TMAX_IN_EP
Endpoint Status	Running
Initial State at Boot	Running
Direction	Inbound

Item	Value
Description	Tmax inbound endpoint

- **[Connection Info] Tab**

[Figure 3.5] Adding an Inbound Endpoint - [Connection Info]

Item	Value
Connection Mode	Server
Max Thread Count	10
Port	31000
Max Connections	10

- **[Advanced Settings] Tab**

[Figure 3.6] Adding an Inbound Endpoint - [Advanced Settings]

Item	Description
BizTx Group/BizTx	manual.tmax.tmaxCase1.tx01 (This item can be entered manually or can be selected after creating BizTx Group/BizTx.)

3.3.2. Creating an Outbound Endpoint

The following is an example of adding a Tmax outbound endpoint. The **[Advanced Settings]** tab is not configured in this example.

- **Basic Settings**

[Figure 3.7] Adding an Outbound Endpoint - Basic Settings

Basic Settings

Biz System Name	AL7_BIZSYS	Adapter Type	Tmax	Adapter Name	TMAX_OUT_ADT
Endpoint ID*	TMAX_OUT_EP	Endpoint Name*	TMAX_OUT_EP	Endpoint Group Name	
Endpoint Status	Running	Initial State at Boot	Running	Direction	Outbound
Description	Tmax outbound end point				
Deployment Purpose					

Item	Value
Endpoint ID	TMAX_OUT_EP
Endpoint Name	TMAX_OUT_EP
Endpoint Status	Running
Initial State at Boot	Running
Direction	Outbound
Description	Tmax outbound endpoint

• **[Connection Info] Tab**

[Figure 3.8] Adding an Outbound Endpoint - [Connection Info]

Connection Info Advanced Settings

Connection Mode

Connection Mode ☐ Server ☒ Client

Max Thread Count* 10 Default Encoding

Address

IP/Host (*) 192.168.1.87 Port* 7282

Timeout/Number of Connections

Read Timeout* 30000 ms Connection Timeout* 3000 ms

Max Connections* 5

Server Alive Check Period ms Server Alive Check Timeout ms

Fallover Server

IP/Host Port

Fallback Period ms Fallback Timeout ms

Item	Value
Connection Mode	Client
Max Thread Count	10
IP/Host	192.168.1.87 (Specify the IP of the machine the sample Tmax server is running on.)
Port	7282
Read Timeout	30000
Connection Timeout	3000

Item	Value
Max Connections	5

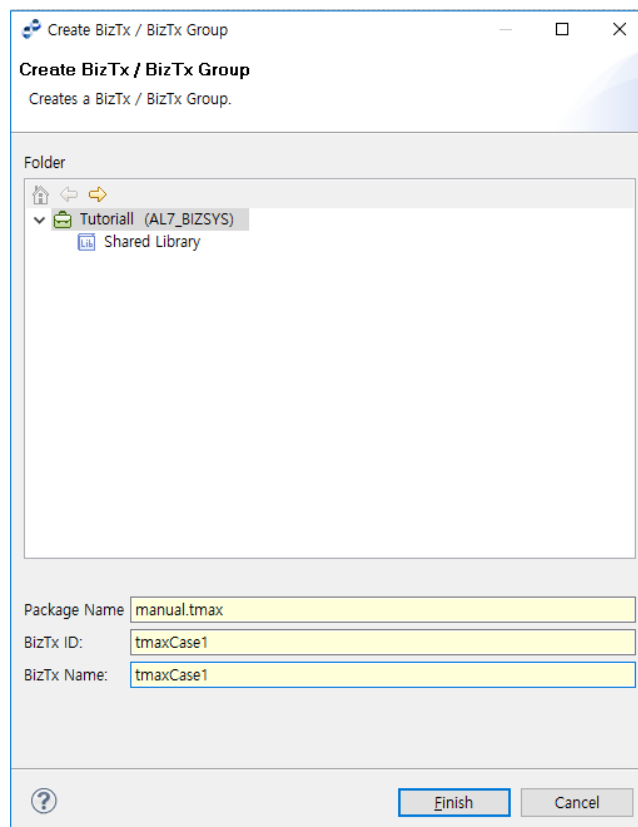
3.4. Creating a Studio Resource

This section describes how to create a resource in Studio. For information about AnyLink Studio, refer to *AnyLink Studio Guide*.

3.4.1. Creating a BizTx Group

In the BizTx Group navigator, right click on a **Project** and go to **[New] > [BizTx/BizTx Group]**.

[Figure 3.9] Create BizTx Group Screen

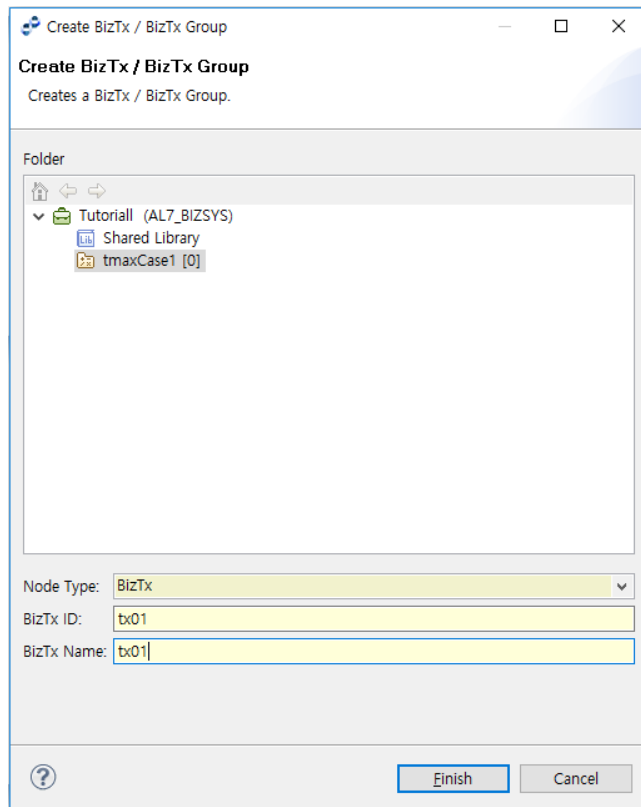


Item	Value
Package Name	manual.tmax
BizTx ID	tmaxCase1
BizTx Name	tmaxCase1

3.4.2. Creating a BizTx

In the BizTx Group navigator, right click on a **BizTx Group** and go to **[New] > [BizTx/BizTx Group]**.

[Figure 3.10] Create BizTx Screen



Item	Value
Node Type	BizTx
BizTx ID	tx01
BizTx Name	tx01

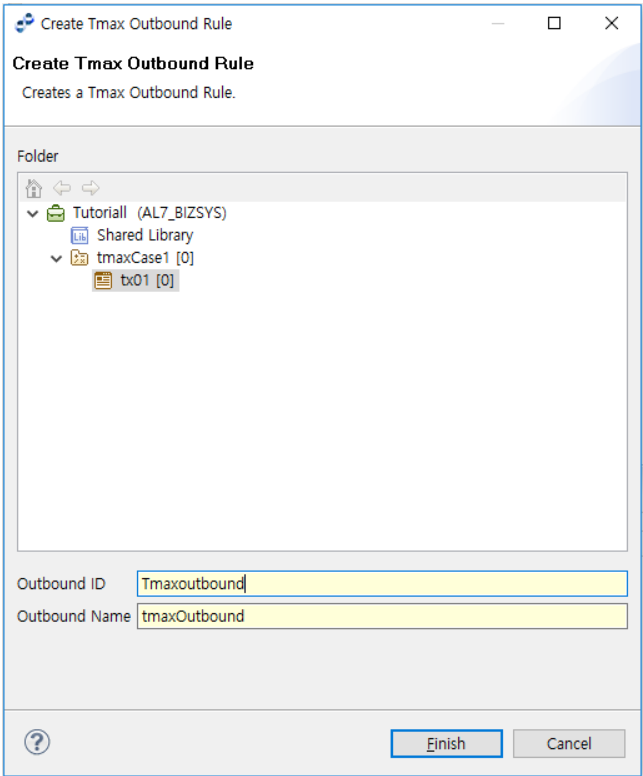
3.4.3. Creating a Message

Messages that can be created in Studio are request input header/body, request output header/body, response input header/body, and response output header/body. For information about creating a message, refer to *AnyLink Studio Guide*.

3.4.4. Creating an Outbound Rule

In the BizTx Group navigator, right click on a **BizTx** and go to **[New] > [Outbound Rule] > [Tmax Outbound Rule]**.

[Figure 3.11] Creating an Outbound Rule

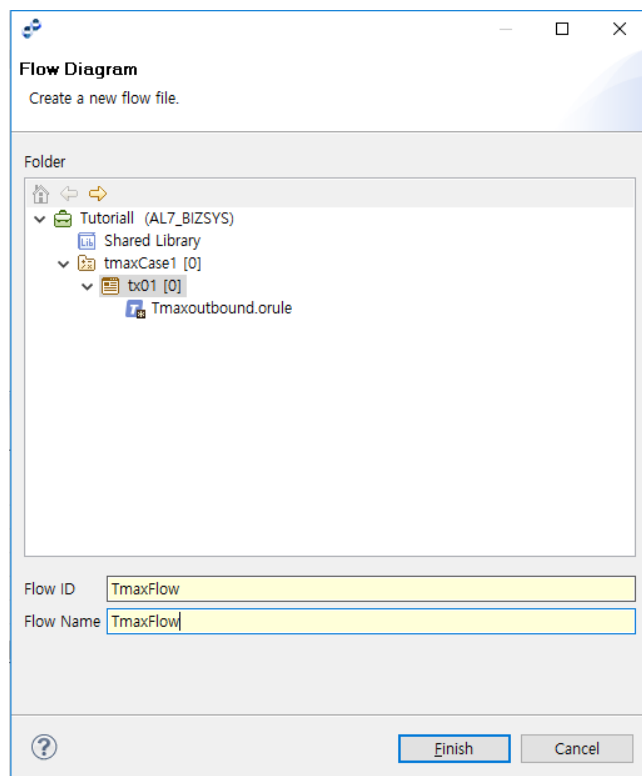


Item	Value
Outbound ID	Tmaxoutbound
Outbound Name	tmaxOutbound

3.4.5. Creating a Flow

In the BizTx Group navigator, right click on a **BizTx** and go to **[New] > [Flow]** to create a flow.

[Figure 3.12] Creating a Flow



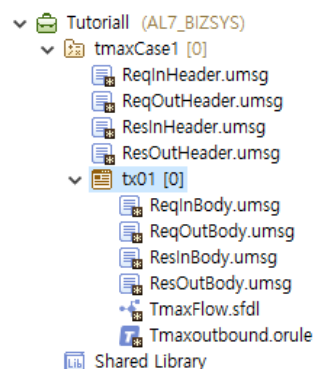
Item	Value
Flow ID	TmaxFlow
Flow Name	TmaxFlow

3.5. Configuring a Studio Resource

This section describes how to configure a resource. For information about AnyLink Studio, refer to *AnyLink Studio Guide*.

The following shows resources created in the BizTx Group navigator.

[Figure 3.13] BizTx Group Navigator



3.5.1. Configuring a BizTx Group

The following is an example of configuring a BizTx Group. The **[Parsing Options]** tab is not configured in this example.

- **[BizTx Group Info] Tab**

[Figure 3.14] Configuring a BizTx Group - [BizTx Group Info]

The screenshot displays the 'Basic Info' tab of the BizTx Group configuration. It includes fields for BizTx Group ID (tmaxCase1), Package Name (manual.tmax), BizTx Group Name (tmaxCase1), and BizTx Type (NONE). There are also fields for Version (0), Description, Bypass (NO), and XA (NO). Below these are three tables for Request Message, Normal Response Message, and Business Error Response Message, each with columns for Name, Message ID, Type ID, and Select All. The Request Message table has one entry: ReqInHeader. The Normal Response Message table has one entry: ResOutHeader. The Business Error Response Message table is empty. At the bottom, there is an 'Error Response Handling' section with an 'Error Response Type' dropdown set to NONE.

Item	Value
Request Message	ReqInHeader
Normal Response Message	ResOutHeader
Bypass	NO
XA	NO
Error Response Type	NONE

- **[BizTx Group Options] Tab**

[Figure 3.15] Configuring a BizTx Group - [BizTx Group Options]

BizTx Group Options

BizTx Flow Timeout (ms)

60,000

Fixed Connection

NO

Use External GUID

NO

GUID Type

STRING

Response Option

REQUEST_RESPONSE

Reliable Message Delivery

RM Enabled

Queue ID

Search

Custom

Retry Interval (s)

Maximum Retry Count

Expiry Time (s)

Check Duplicate BizTx

NO

Check Duplicate BizTx Field

Message ID	Field ID

AddDelete

Duplicate BizTx Retention Interval

BizTx Priority

MEDIUM

Item	Value
BizTx Flow Timeout (ms)	60000
Response Option	REQUEST_RESPONSE
BizTx Priority	MEDIUM

- **[Parsing Definition] Tab**

[Figure 3.16] Configuring a BizTx Group - [Parsing Definition]

[illegible]

Item	Value
Child BizTx Identification Method	MESSAGE
Message ID	ReqInHeader
Field ID	tx_code

3.5.2. Configuring a Transaction

The following is an example of configuring a transaction. The **[Parsing Options]** tab is not configured in this example.

• [BizTx Info] Tab

[Figure 3.17] Configuring a BizTx - [BizTx Info]

The screenshot displays the configuration interface for a BizTx transaction. The **[BizTx Info]** tab is active, showing the following configuration details:

- Basic Info:**
 - BizTx ID: tx01
 - Package Name: manual.tmax.tmaxCase1
 - BizTx Name: tx01
 - Version: 1
 - BizTx Type: PARENT
 - Bypass: NO
 - XA: NO
 - Description: (empty)
- Invocation Service:**
 - Service Type: FLOW
 - Service Name: (empty)
 - Mapping: (empty)
- Request Message:**

Name	Message ID	Type ID	Select An
ReqInBody	ReqInBody	ReqInBodyFixedLe...	Off
- Normal Response Message:**

Name	Message ID	Type ID	Select An
ResOutBody	ResOutBody	ResOutBodyFixed...	Off
- Business Error Response Message:**

Name	Message ID	Type ID	Select An
------	------------	---------	-----------
- Error Response Handling:**
 - Error Response Type: PARENT

[Figure 3.18] Configuring a BizTx - [BizTx Info] - Invocation Service

The screenshot displays the configuration interface for a BizTx transaction, specifically the **[Invocation Service]** tab. The configuration details are as follows:

- Service Type:** FLOW
- Service Name:** TmaxFlow (TmaxFlow_Message_START_Ever)

Item	Value
Request Message	ReqInBody
Normal Response Message	ResOutBody

Item	Value
Bypass	NO
XA	NO
Error Response Type	PARENT
Service Type	FLOW
Service Name	TmaxFlow (TmaxFlow_Message_STRT_Event_697118) (randomly generated)

- [BizTx Options] Tab

[Figure 3.19] Configuring a BizTx - [BizTx Options]

BizTx Options

- BizTx Flow Timeout (ms)
- No Timeout ☒
- Fixed Connection
- Use External GUID
- GUID Type
- Response Option
- Reliable Message Delivery ☐
 - RM Enabled
 - Queue ID
 - Custom ☐
 - Retry Interval (s)
 - Maximum Retry Count
 - Expiry Time (s)
- Check Duplicate BizTx
 - Check Duplicate BizTx Field

Message ID	Field ID
- Duplicate BizTx Retention
- BizTx Priority

Item	Value
BizTx Flow Timeout (ms)	None
No Timeout	Yes
Response Option	PARENT
BizTx Priority	MEDIUM

- [Parsing Info] Tab

[illegible]

Item	Value
Code Value	A001
Type	REQUEST

The following is an example of configuring an outbound rule.

TMAX Outbound Rule

Define Outbound Rule

- Protocol: TMAX
- Outbound Rule ID *: Tmaxoutbound
- Outbound Rule Name *: TmaxOutbound
- Request Timeout(ms): 10,000
- Endpoint * (Group): TMAX_OUT_EP

Description

- Tmax Response Option: true
- Tmax XA Transaction: false
- Tmax Service Timeout(ms): 5000
- Tmax Service ID: TEST_SERVICE
- Bypass: ☐

Request Message

Name	Message ID	Type ID	Select Array
<input checked="" type="checkbox"/> ReqOutHeader	ReqOutHeader	ReqOutHeaderFixedLength	Off
<input checked="" type="checkbox"/> ReqOutBody	ReqOutBody	ReqOutBodyFixedLength	Off

< >

Response Message

Name	Message ID	Type ID	Select Array
<input checked="" type="checkbox"/> ResinHeader	ResinHeader	ResinHeaderFixedLength	Off
<input checked="" type="checkbox"/> ResinBody	ResinBody	ResinBodyFixedLength	Off

< >

Item	Value
Request Timeout (ms)	10000
Endpoint (Group)	TMAX_OUT_EP
Tmax Response Option	true
Tmax XA Transaction	false
Tmax Service Timeout (ms)	5000
Tmax Service ID	TEST_SERVICE
Request Message	ReqOutHeader ReqOutBody
Normal Response Message	ResInHeader ResInBody

3.5.4. Configuring a Flow

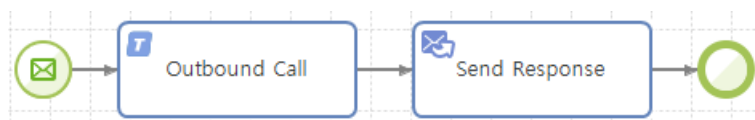
Configure a flow as follows:

1. Create a flow diagram
2. Configure variables
3. Configure message events
4. Configure outbound service call
5. Configure response service call

Flow Diagram

The following is an example of creating a service flow diagram.

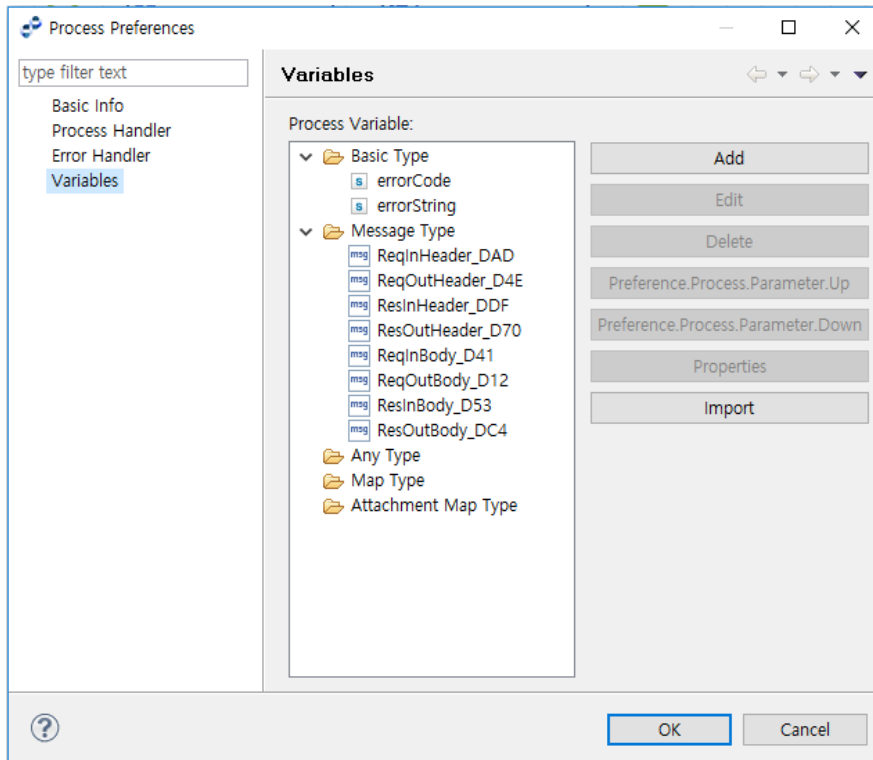
[Figure 3.22] Service Flow Editor - Basic Diagram



Variables

To set variables, click **[Properties]** from the context menu of the Flow editor.

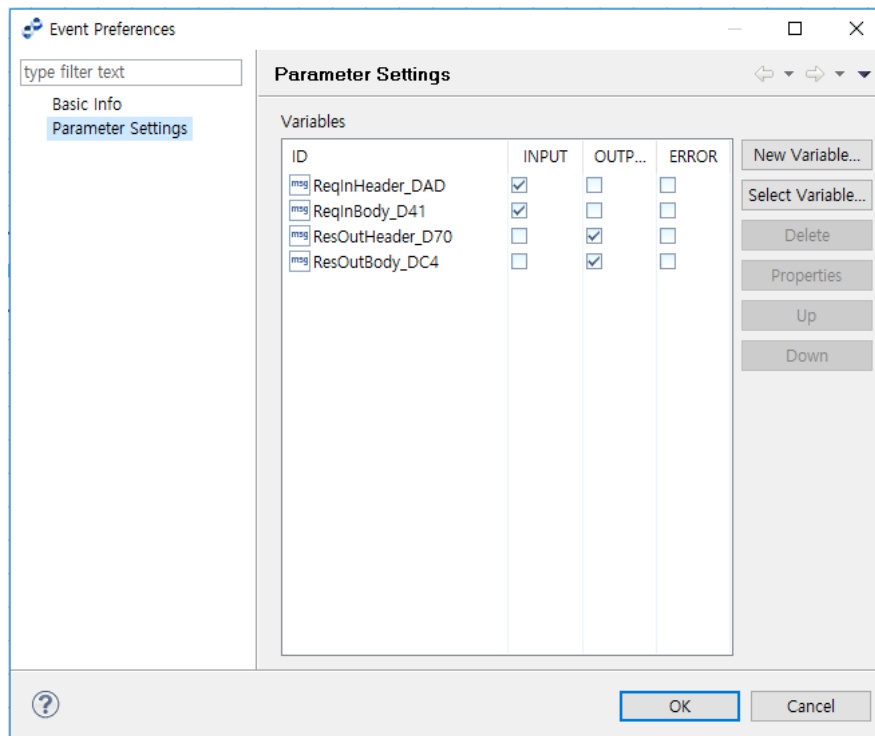
[Figure 3.23] Property Preferences - Variables



Message Event

Click **[Properties]** from the context menu of a **Message Event** in the Flow editor, and then click **[Parameter Properties]** from the **Event Preferences** window.

[Figure 3.24] Event Preferences - Parameter Settings

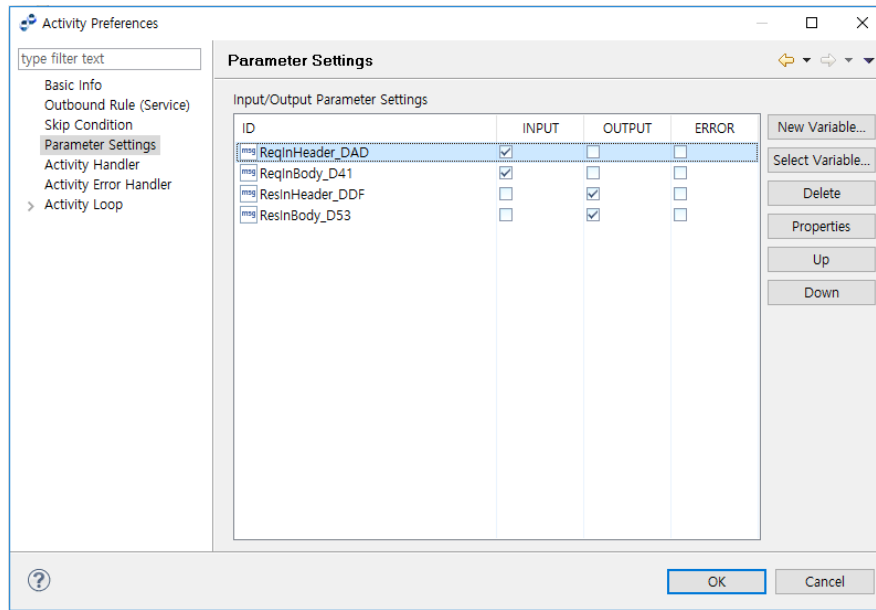


Outbound Call

Configure an outbound call as follows:

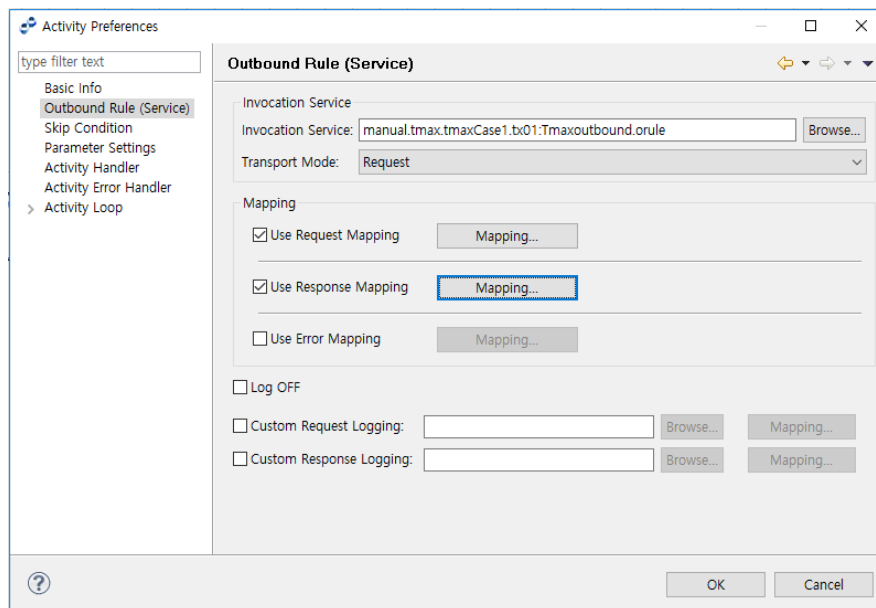
1. Select **[Properties]** from the **Tmax Activity (Outbound Call)** context menu of the flow editor. Click **[Parameter Settings]** in the **Activity Preferences** window.

[Figure 3.25] Outbound Call - Parameter Settings



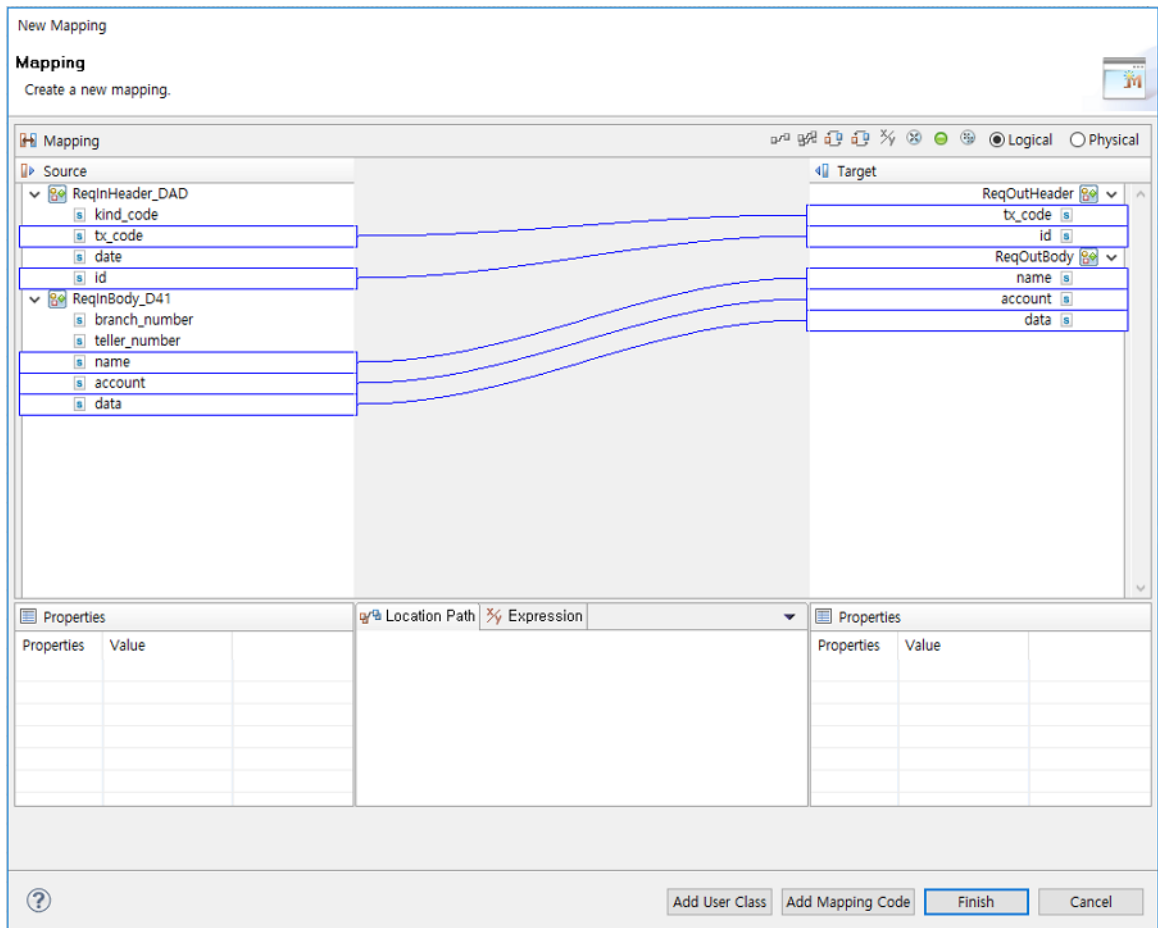
2. Click **[Outbound Rule (Service)]** from the **Activity Preferences** window.

[Figure 3.26] Outbound Call - Outbound Rule (Service)

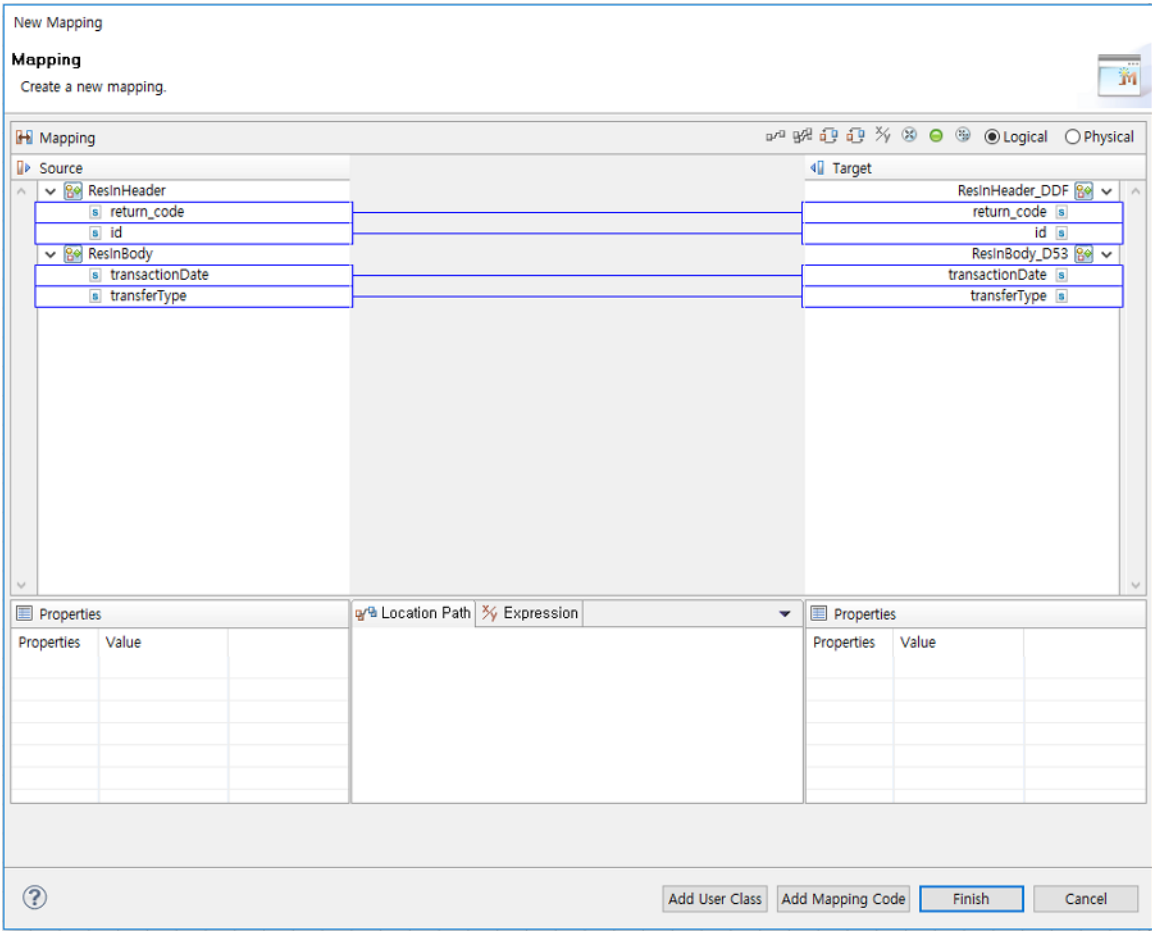


3. Select the **'Use Request Mapping'** and **'Use Response Mapping'** checkboxes, and then click **[Mapping]** to create mappings.

[Figure 3.27] Outbound Call - Outbound Rule (Service) - Request Mapping



[Figure 3.28] Outbound Call - Outbound Rule (Service) - Response Mapping

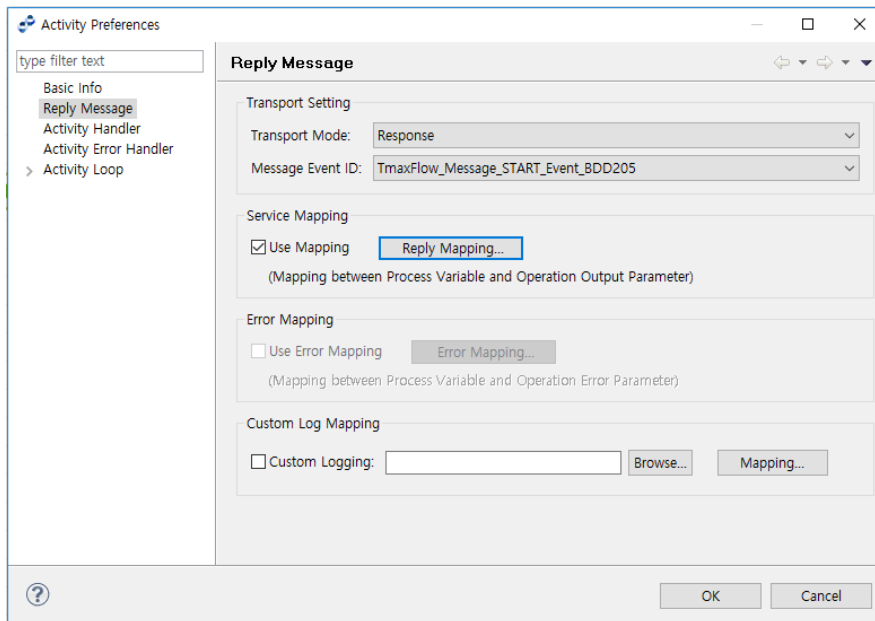


Response Call

Configure a response call as follows:

1. Select **Properties** from the **Response Message Activity (Send Message)** context menu of the flow editor. Click **[Reply Message]** in the **Activity Preferences** window.

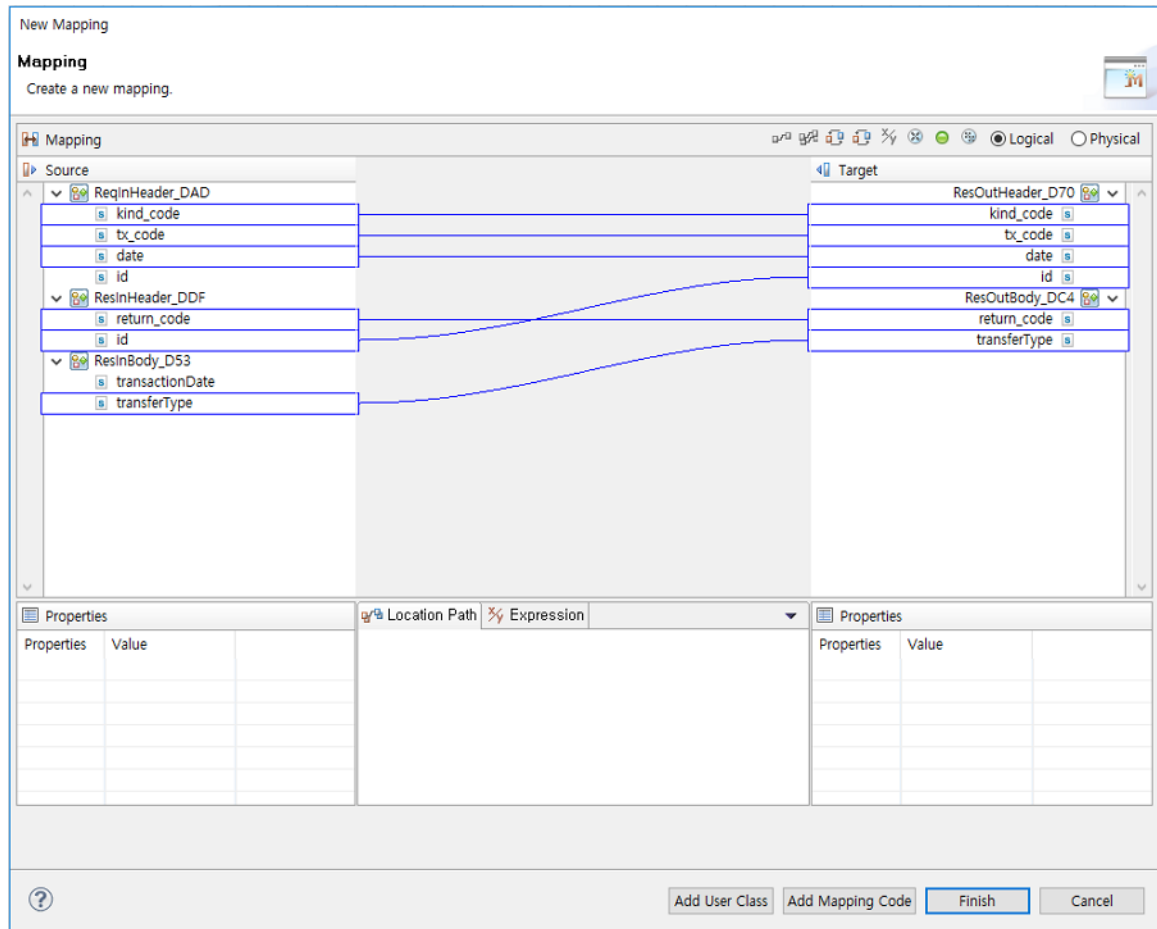
[Figure 3.29] Reply Message



2. Select the **'Use Mapping'** checkbox, and then click **[Reply Mapping...]** to create mapping.

Click **[Add Source]** from the context menu of the Source section in the **Mapping** screen, and then select ReqInHeader, ResInHeader, and ResInBody for the mappings.

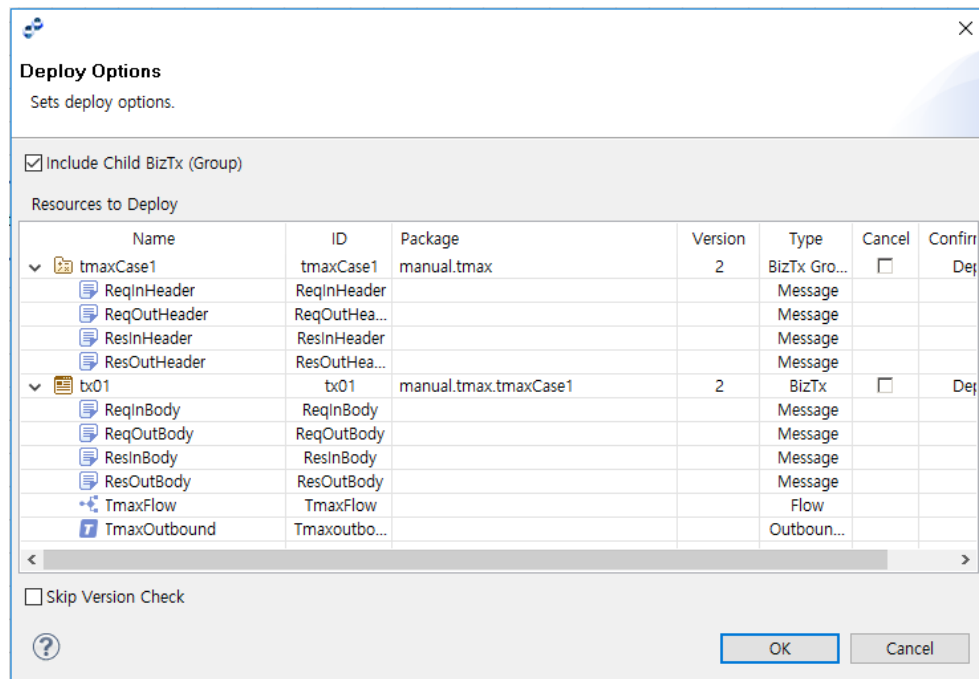
[Figure 3.30] Reply Message - Service Mapping - Reply Mapping



3.6. Deployment

Use the following Deploy Options window to configure deployment options for a BizTx Group/BizTx. For more information, refer to *AnyLink Studio Guide*.

[Figure 3.31] Deploying a BizTx Group/BizTx



3.7. Testing a BizTx

3.7.1. Client Program

To use the Tmax client program, the user needs Tmax libraries (webt.jar and jclient.jar).

<TmaxClient.java>

```
package manual.tmax;

import tmax.webt.WebtAttribute;
import tmax.webt.WebtBuffer;
import tmax.webt.WebtConnection;
import tmax.webt.io.WebtStringBuffer;

public class TmaxClient {
    String host;
    int port;
    String serviceName;

    public TmaxClient(String host, int port, String serviceName) {
        this.host = host;
        this.port = port;
        this.serviceName = serviceName;
    }
}
```

```

    }

    public String call(String inputMessage) {
        WebtBuffer sndBuffer = makeWebtBuffer(inputMessage);
        WebtConnection connection = new WebtConnection(host, port);
        WebtBuffer recvBuffer = connection.tpcall(sndBuffer, serviceName,
WebtAttribute.TPNOFLAGS);
        return new String(recvBuffer.getBytes());
    }

    public WebtBuffer makeWebtBuffer(String message) {
        WebtBuffer webtBuffer = new WebtStringBuffer();
        webtBuffer.setString(message);
        return webtBuffer;
    }

    public static void main(String[] args) {
        try {
            TmaxClient client = new TmaxClient("192.168.1.87", 7282, "SENDCLNT");

            String sendMessage = "AAAAA00120160701KIMKILSU  B01P1034MOONYOU  KNIGHT
THISISSAMPLEDATA                                ";

            System.out.println("SEND:" + sendMessage);
            String recvMessage = client.call(sendMessage);
            System.out.println("RECV:" + recvMessage);
        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}

```

3.7.2. Tmax Environment Configuration and Server Program

For information about Tmax environment configuration and program build, refer to the relevant Tmax guide.

- Configuring a Tmax Java gateway

```

*SERVICE
SENDCLNT          SVRNAME = jgw_t1toal

*GATEWAY
jgw_t1toal        GWTYPE=JEUS_ASYNC,
                  NODENAME="tmaxi7",

```

```
PORTNO=8801,  
RGWADDR="192.168.14.106",  
RGWPORTNO=31000,  
CLOPT = "-r"
```

- Configuring a Tmax service

```
*SERVICE  
TEST_SERVICE          SVRNAME = server_test
```

- Tmax service program

<server_test.c>

```
#include <usrinc/atmi.h>  
#include <stdio.h>  
#include <string.h>  
  
TEST_SERVICE(TPSVCINFO *msg)  
{  
    char *rcvbuf;  
    char *recvData;  
  
    recvData = (char *)tpalloc("STRING", NULL, msg->len + 1);  
    memcpy(recvData, msg->data, msg->len);  
  
    printf(" Data recv = %s\n", recvData);  
    printf(" Data Length = %d\n", msg->len);  
  
    rcvbuf=(char *)tpalloc("STRING", NULL, 1024);  
    if(rcvbuf==NULL) {  
        printf("tpalloc failed (rcvbuf) : %s\n", tpstrerror(tperrno));  
        tpreturn(TPFAIL, -1, NULL, 0, 0);  
    }  
  
    strcpy(rcvbuf, "1000KIMKILSU 20160720SP01");  
    printf(" Data send = %s\n", rcvbuf);  
  
    tpfree(recvData);  
  
    tpreturn( TPSUCCESS, 0, rcvbuf, 0 , 0 );  
}
```

3.7.3. Running a Test

- Client results

```
SEND:AAAAA00120160701KIMKILSU  B01P1034MOONYOU  KNIGHT  THISISSAMPLEDATA

[2016.08.03 19:42:46:819] (main)webt.properties file is not found
[2016.08.03 19:42:46:857] (main)[WEBT-1109][000000] start to connect server
192.168.1.87:7282 for 20000 msec
[2016.08.03 19:42:46:877] (main)[WEBT-1102][000000] connection established
socket(192.168.1.87:7282)
[2016.08.03 19:42:46:880] (main)[WEBT-1111][000000] socket list add
tmax.webt.io.WebtSocket@5901d85a
[2016.08.03 19:42:46:882] (main)[WEBT-1037][000000] buffer transmitted
[_tpstart(0x0):seq(0):msgtype(1):cd(1):errcode(0):rcode(0):asize(76):reserved(0x0):
magic(0x270f)][xid:00 00 00 00 : 00 00 00 00 : 00 00 00 00 : F
[2016.08.03 19:42:46:882] (main)[WEBT-1034][000000] receive start for 60000 msec
[2016.08.03 19:42:46:882] (main)[WEBT-1035][000000] buffer received [---(0x0):seq(0):
msgtype(1001):cd(8):errcode(0):rcode(16):asize(56):reserved(0x0):magic(0x270f)]
[xid:00 00 00 00 : 00 00 00 00 : 00 00 00 1e : F
[2016.08.03 19:42:46:882] (main)[WEBT-1041][000000] matching received.. seqno(0:0),
type(1:1001)
[2016.08.03 19:42:46:883] (main)[WEBT-1042][000000] matching result.. seqno match
= true, type match = true
[2016.08.03 19:42:46:883] (main)[WEBT-1305][000000] set maximum dialoge session
size 8
[2016.08.03 19:42:46:883] (main)[WEBT-1003][000000] tmax session established.. tmax
version [5.0.2.1]
[2016.08.03 19:42:46:883] (main)[WEBT-1005][000000] node count [1]
[2016.08.03 19:42:46:883] (main)[WEBT-1006][000000] rq count [0]
[2016.08.03 19:42:46:883] (main)[WEBT-1007][000000] topend product count [0]
[2016.08.03 19:42:46:884] (main)[WEBT-1056][000000] node registered [0:tmaxi7]
[2016.08.03 19:42:46:884] (main)[WEBT-1011][000000] compress threshold -1 byte
[2016.08.03 19:42:46:885] (main)[WEBT-1037][000000] buffer transmitted
[SENDCLNT(0x0):
seq(1):msgtype(3):cd(0):errcode(0):rcode(0):asize(107):reserved(0x0):magic(0x270f)]
[xid:00 00 00 00 : 00 00 00 00 : 00 00 00 00 : F
[2016.08.03 19:42:46:885] (main)[WEBT-1034][000000] receive start for 30000 msec
[2016.08.03 19:42:46:935] (main)[WEBT-1035][000000] buffer received [---(0x0):seq(1):
msgtype(1003):cd(0):errcode(0):rcode(0):asize(1024):reserved(0x0):magic(0x270f)]
[xid:00 00 00 00 : 00 00 00 00 : 00 00 00 00 : F
[2016.08.03 19:42:46:935] (main)[WEBT-1041][000000] matching received..
seqno(1:1), type(3:1003)
[2016.08.03 19:42:46:936] (main)[WEBT-1042][000000] matching result..
seqno match = true, type match = true
RCV:AAAAA00120160701KIMKILSU  1000SP01
```

- Server results (Tmax ulog)

```
Data recv = A001KIMKILSU  MOONYOU  KNIGHT      THISISSAMPLEDATA
```

```
Data Length = 86
```

```
Data send = 1000KIMKILSU  20160720SP01
```

