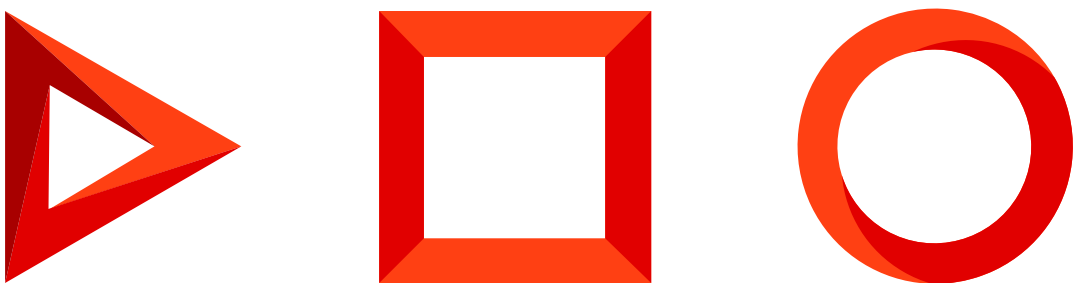
Creatio Academy

WebSocket messages

Send messages via WebSocket

Version 8.0



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WebSocket sends messages. Creatio broadcasts messages received via WebSocket to subscribers using the `ClientMessageBridge` client module schema. Within Creatio, messages are sent using a `sandbox` object. This is a broadcast message named `SocketMessageReceived`. You can subscribe to the message and handle the received data.

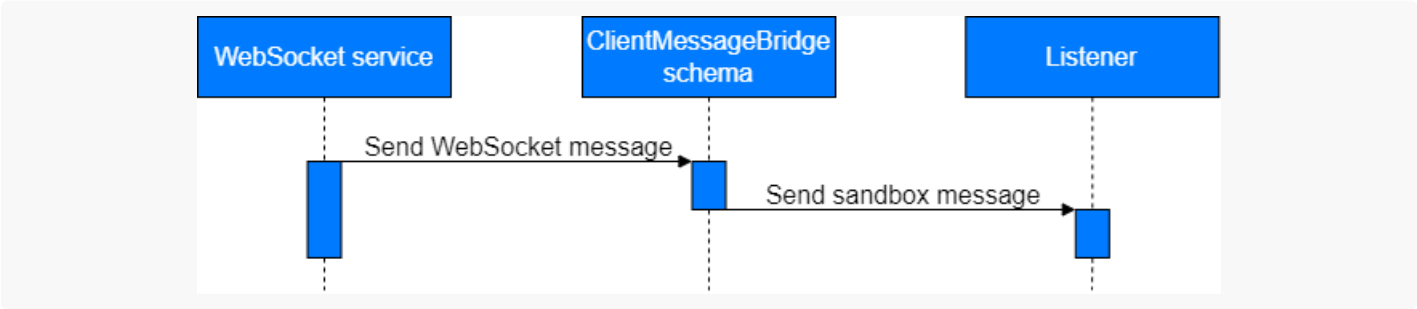
Implement custom logic that sends a message

To **implement custom logic that sends a message received via WebSocket**:

1. Create a replacing schema of the `ClientMessageBridge` client module schema. Learn more in a separate article: Client module.
2. Add the message to the `messages` property of a client schema. Learn more in a separate article: messages property.
3. Add the message received via WebSocket to the configuration object of schema messages. To do this, overload the `init()` parent method.
4. Trace the message sending. To do this, overload the `afterPublishMessage()` base method.

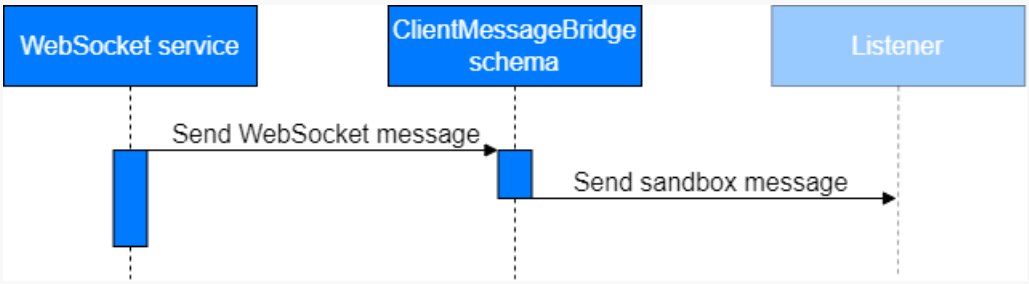
Save the message to history

Message history workflow is based on the `Listener` handler that is a part of message publishing process in Creatio.



If the `Listener` handler is not already loaded, Creatio executes the following **actions**:

1. Save unhandled messages to history.
2. Check availability of the `Listener` handler before publishing a message.
3. Publish all saved messages in their order of reception after the handler is loaded.
4. Clear history after publishing messages from history.



The following **abstract methods** of the `BaseMessageBridge` class implement saving messages to history and working with them via `localStorage` browser repository:

- `saveMessageToHistory()`. Saves a new message to the message collection.
- `getMessagesFromHistory()`. Receives an array of messages by name.
- `deleteSavedMessages()`. Deletes saved messages by name.

The `ClientMessageBridge` schema implements the abstract methods of the `BaseMessageBridge` parent class.

To **implement saving messages to history**, set the `isSaveHistory` property to `true` when adding a configuration object.

Example that saves messages to history

```
init: function() {
   /* Call the parent init() method. */
   this.callParent(arguments);
   /* Add a new configuration object to the collection of configuration objects. */
   this.addMessageConfig({
       /* The name of the message received via WebSocket. */
       sender: "OrderStepCalculated",
       /* The name of the WebSocket message sent in Creatio via sandbox. */
       messageName: "OrderStepCalculated",
       /* Whether to save messages to history. */
       isSaveHistory: true
    });
},
```

To **implement working with messages via another repository**:

1. Specify the `BaseMessageBridge` class as a parent class.
2. Implement custom `saveMessageToHistory()`, `getMessagesFromHistory()`, and `deleteSavedMessages()` methods in the class that inherits from the `BaseMessageBridge` class.

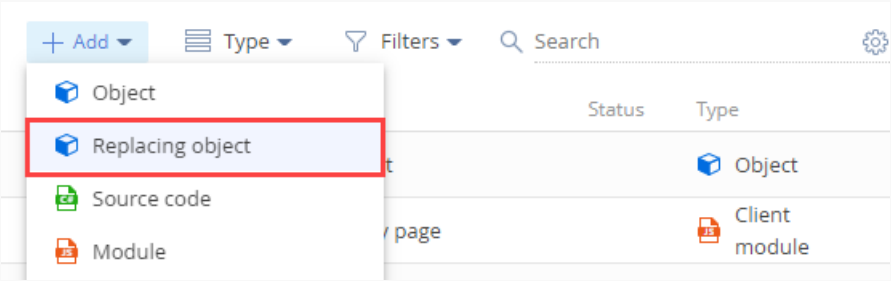
Implement a subscriber to a WebSocket message

Advanced

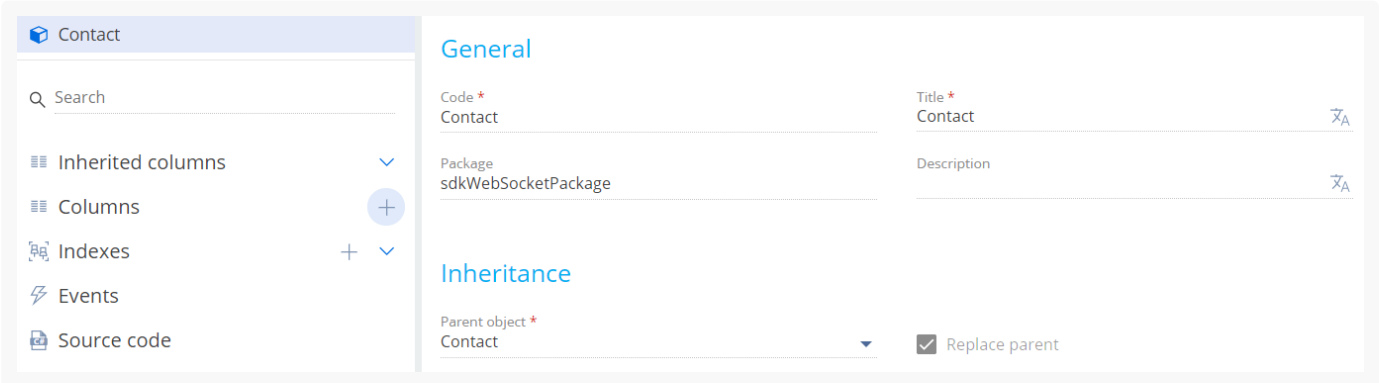
Example. Publish the `NewMessage` message in the back-end when you save a contact. Send the message via WebSocket. The message must include the contact birthday and name. Implement the `NewMessage` message sending in the front-end. Display messages in the browser console.

1. Create a replacing object schema

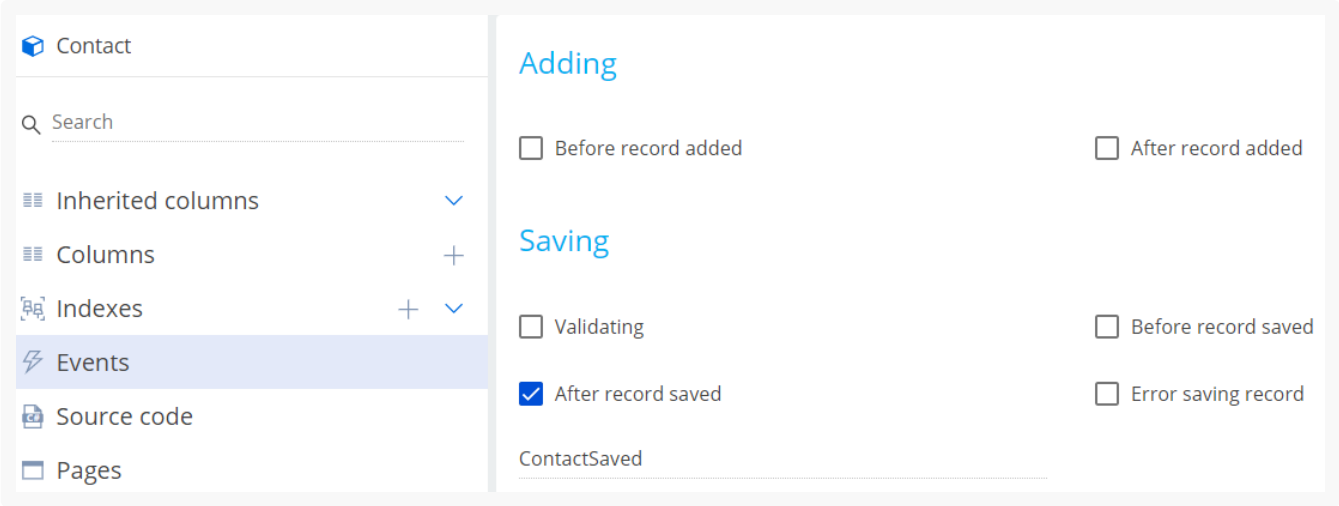
1. Open the [*Configuration*] section and select a custom package to add the schema.
2. Click [*Add*] → [*Replacing object*] on the section list toolbar.



3. Fill out the **schema properties**.
   - Set [*Code*] to "`Contact`."
   - Set [*Title*] to "`Contact`."
   - Select "`Contact`" in the [*Parent object*] property.



4. Add an **event** to the schema.
   a. Open the [*Events*] node of the object structure.
   b. Go to the [*Saving*] block → select the [*After record saved*] checkbox. Creatio names the event `ContactSaved`.

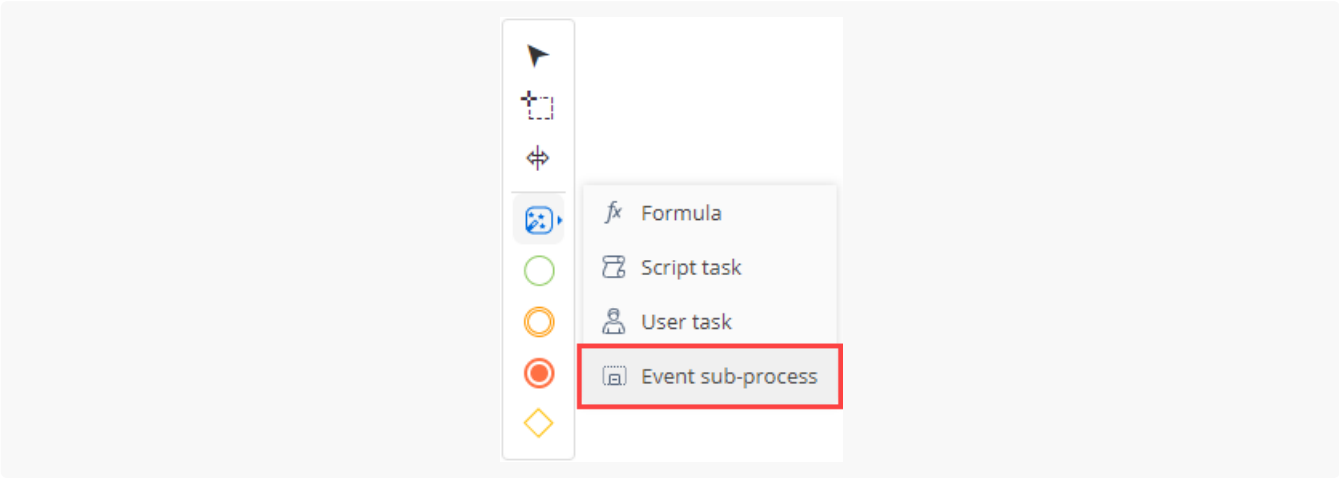


c. Click [*Save*] on the Object Designer's toolbar.

5. Implement an **event sub-process**.

   a. Click [*Open process*] on the Object Designer's toolbar.

   b. Click [*System actions*] in the element area of the Designer and drag the[*Event sub-process*] element to the working area of the Process Designer.

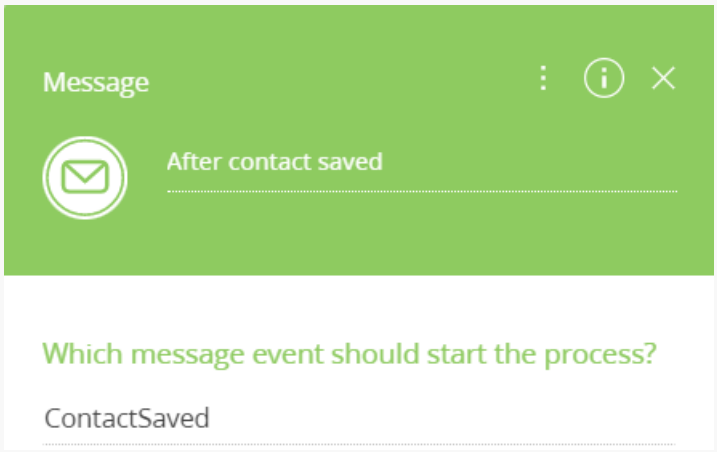


   c. Set the [*Title*] property in the element setup area to "`Contact Saved Sub-process`."

   d. Set up the **event sub-process elements**.

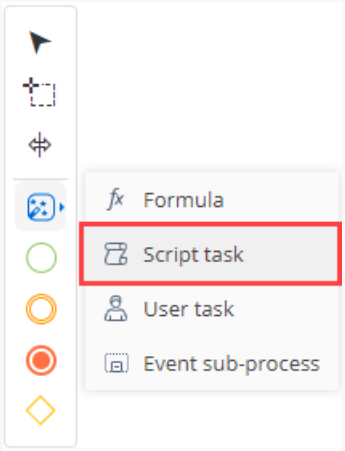
      a. Set up the [*Message*] **start event**.

      - Set [*Title*] to "`After contact saved`."
      - Set [*Which message event should start the process?*] to "`ContactSaved`."



d. Add the [*Script task*] **system action**.

   a. Click [*System actions*] in the element area of the Designer and drag the [*Script task*] system action to the working area of the sub-process.



   b. Name the [*Script task*] system action "`Publish a message via WebSocket.`"

   c. Add the code of the [*Script task*] system action.

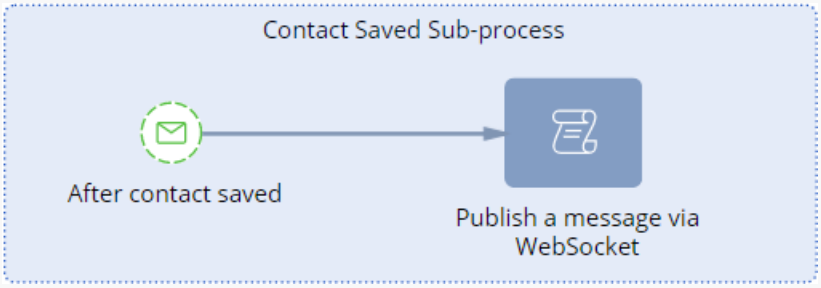
Code of the [*Script task*] system action

```
/* Receive the contact name. */
string userName = Entity.GetTypedColumnValue<string>("Name");
/* Receive the date of the contact birthday. */
DateTime birthDate = Entity.GetTypedColumnValue<DateTime>("BirthDate");
/* Generate the message text. */
string messageText = "{\"birthday\": \"" + birthDate.ToString("s") + "\", \"name\": \
/* Set the message name. */
string sender = "NewMessage";
/* Publish the message via WebSocket. */
MsgChannelUtilities.PostMessageToAll(sender, messageText);
return true;
```

d. Click [*Save*] on the Process Designer's toolbar.

e. Set up the **sequence flow**. Click in the menu of the [*Message*] start event and connect the [*Message*] start event to the [*Publish a message via WebSocket*] system action.

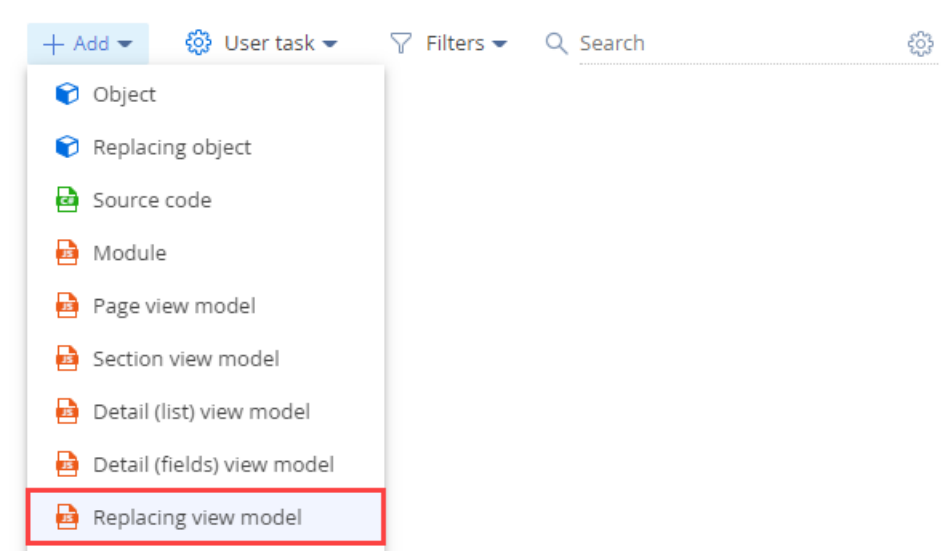
View the event sub-process in the figure below.



6. Click [*Save*] then [*Publish*] on the Process Designer's toolbar.

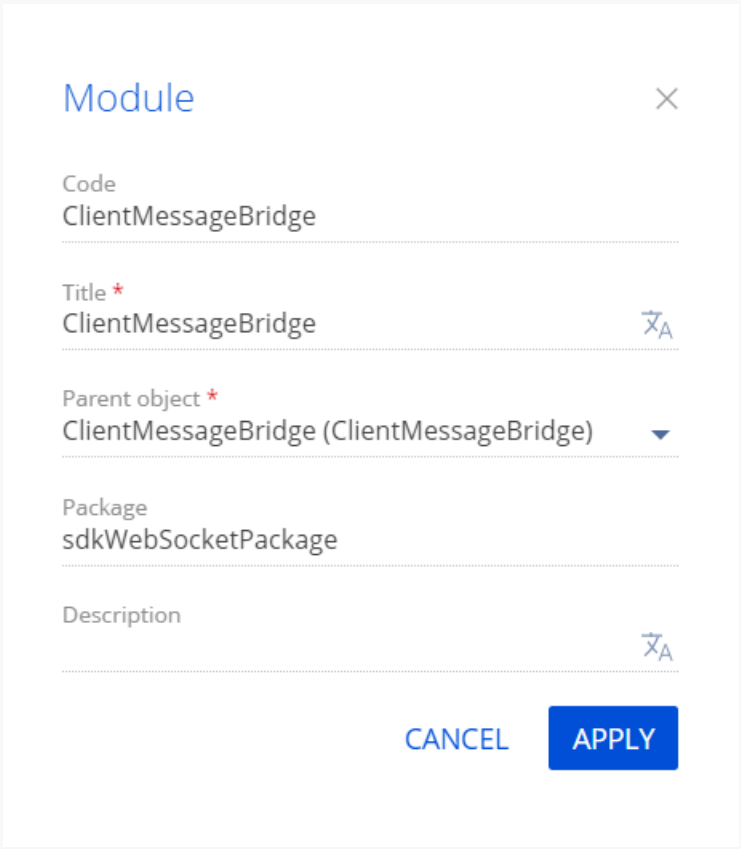
2. Implement message sending in Creatio

1. Open the [*Configuration*] section and select a custom package to add the schema.
2. Click [*Add*] → [*Replacing view model*] on the section list toolbar.



3. Fill out the **schema properties**.

- Set [*Code*] to "`ClientMessageBridge`."
- Set [*Title*] to "`ClientMessageBridge`."
- Select "`ClientMessageBridge`" in the [*Parent object*] property.



4. Implement sending of the `NewMessage` broadcast message.

   - In the `messages` property, bind the `NewMessage` broadcast message that can be published in Creatio.
   - Overload the following parent methods in the `methods` property:
     - `init()`. Adds a message received via WebSocket to the schema's message configuration object.
     - `afterPublishMessage`. Monitors the message sending.

   View the source code of the replacing view model schema below.

`ClientMessageBridge`

```
define("ClientMessageBridge", ["ConfigurationConstants"], function(ConfigurationConstants) {
    return {
        /* Messages. */
        messages: {
            /* Message name. */
            "NewMessage": {
                /* Broadcast message. */
                "mode": Terrasoft.MessageMode.BROADCAST,
                /* The message direction is publishing. */
                "direction": Terrasoft.MessageDirectionType.PUBLISH
            }
        },
        /* Methods. */
```

```
        methods: {
            /* Initialize the schema. */
            init: function() {
                /* Call the parent method. */
                this.callParent(arguments);
                /* Add a new configuration object to the collection of configuration objects.
                this.addMessageConfig({
                    /* The name of the message received via WebSocket. */
                    sender: "NewMessage",
                    /* The name of the WebSocket message sent in Creatio via sandbox. */
                    messageName: "NewMessage"
                });
            },
            /* Method executed after the message is published. */
            afterPublishMessage: function(
                /* The name of the message used to send the message. */
                sandboxMessageName,
                /* Message body. */
                webSocketBody,
                /* Result of sending the message. */
                result,
                /* Configuration object that sends the message. */
                publishConfig) {
                /* Verify that the message matches the message added to the configuration obj
                if (sandboxMessageName === "NewMessage") {
                    /* Save the body to local variables. */
                    var birthday = webSocketBody.birthday;
                    var name = webSocketBody.name;
                    /* Display the body in the browser console. */
                    window.console.info("Published message: " + sandboxMessageName +
                        ". Name: " + name +
                        "; birthday: " + birthday);
                }
            }
        }
    };
});
```

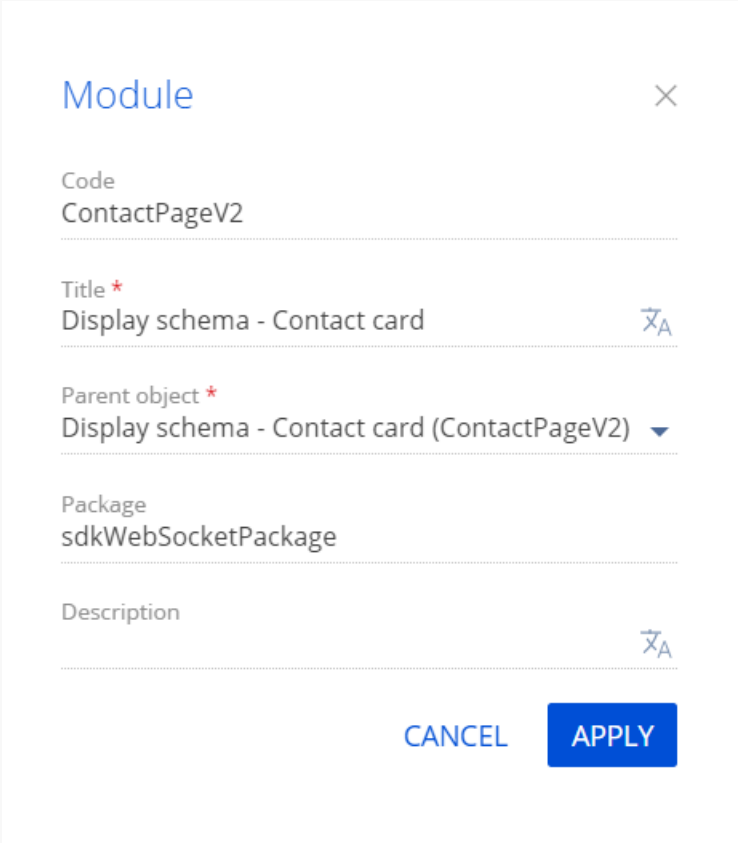
5. Click [*Save*] on the Designer's toolbar.

3. Implement subscription to the message

1. Open the [*Configuration*] section and select a custom package to add the schema.
2. Click [*Add*] → [*Replacing view model*] on the section list toolbar.
3. Fill out the **schema properties**.

   - Set [*Code*] to "`ContactPageV2`."

- Set [*Title*] to "`Display schema - Contact card`."
- Select "`ContactPageV2`" in the [*Parent object*] property.



4. Implement subscription to the `NewMessage` broadcast message.

   - In the `messages` property, bind the `NewMessage` broadcast message to subscribe.
   - Overload the `init()` parent method in the `methods` property. The method subscribes to the `NewMessage` message. Implement the `onNewMessage()` handler method that handles the object received in the message and returns the result to the browser console.

   View the source code of the replacing view model schema below.

`ContactPageV2`

```
define("ContactPageV2", [], function(BusinessRuleModule, ConfigurationConstants) {
    return {
        /* Object schema name. */
        entitySchemaName: "Contact",
        messages: {
            /* Message name. */
            "NewMessage": {
                /* Broadcast message. */
                "mode": Terrasoft.MessageMode.BROADCAST,
                /* The message direction is subscription. */
```

```
                "direction": Terrasoft.MessageDirectionType.SUBSCRIBE
            }
        },
        /* Methods. */
        methods: {
            /* Initialize the schema. */
            init: function() {
                /* Call the parent method. */
                this.callParent(arguments);
                /* Subscribe to the NewMessage message. */
                this.sandbox.subscribe("NewMessage", this.onNewMessage, this);
            },
            /* Handle the reception event of the NewMessage message. */
            onNewMessage: function(args) {
                /* Save the message body to local variables. */
                var birthday = args.birthday;
                var name = args.name;
                /* Display the body in the browser console. */
                window.console.info("Received message: NewMessage. Name: " +
                    name + "; birthday: " + birthday);
            }
        }
    };
});
```

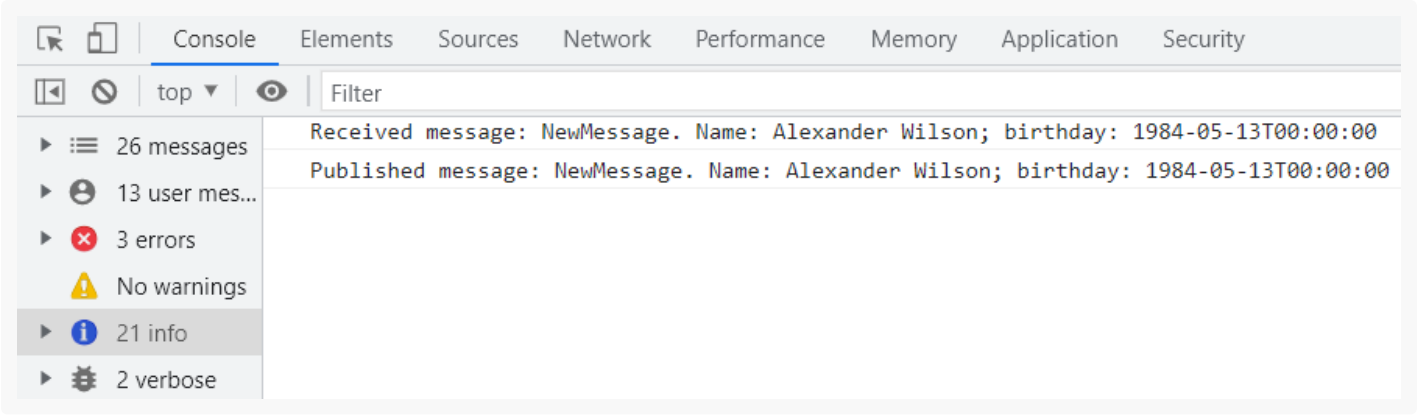
5. Click [*Save*] on the Designer's toolbar.

Outcome of the example

To **view the outcome of the example**:

1. Clear the browser cache.
2. Refresh the [*Contacts*] section page.
3. Open the contact page. For example, Alexander Wilson.
4. Open the [*Console*] tab in the browser console.
5. Modify an arbitrary field.
6. Save the contact.

As a result, the browser console will display the received and sent `NewMessage` messages.



ClientMessageBridge class JS

Advanced

Creatio broadcasts messages received via WebSocket to subscribers using the `ClientMessageBridge` client module schema.

Properties

`LocalStoreName`

The name of the repository that stores the message history.

`LocalStore` `Terrasoft.LocalStore`

A class instance that implements access to the local storage.

Methods

`init()`

Initializes the default value.

`saveMessageToHistory(sandboxMessageName, webSocketBody)`

Saves the message to the storage if the message has no subscribers and the configuration object indicates that saving is required.

Parameters

`sandboxMessageName: String`	The message name that Creatio uses while sending the message.
`webSocketBody: Object`	A message received via WebSocket.

`getMessagesFromHistory(sandboxMessageName)`

Returns an array of saved messages from repository.

Parameters

`sandboxMessageName: String`	The message name that Creatio uses while sending the message.

`deleteSavedMessages(sandboxMessageName)`

Deletes a saved message from repository.

Parameters

`sandboxMessageName: String`	The message name that Creatio uses while sending the message.