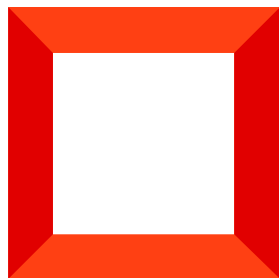
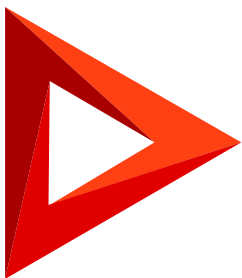


# WebSocket messages

Version 8.0



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# Send messages via WebSocket



**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.

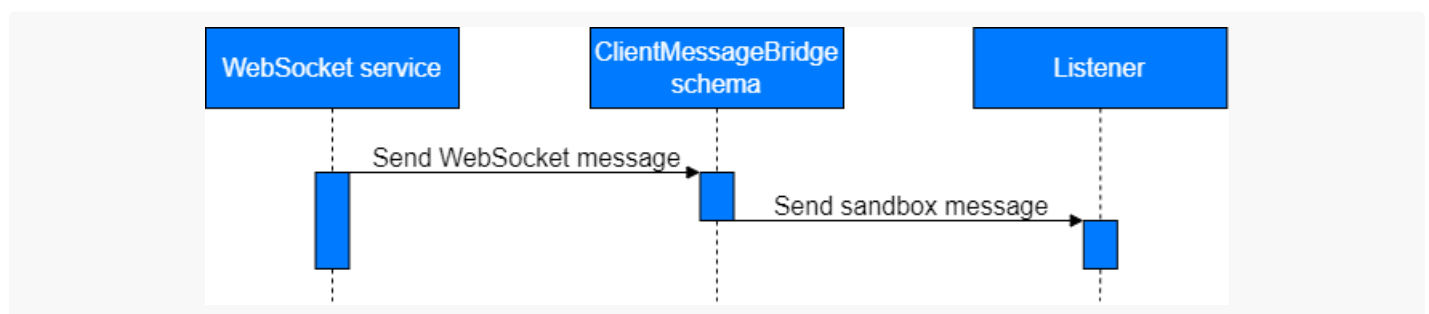
## Implement custom logic that sends a message

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.

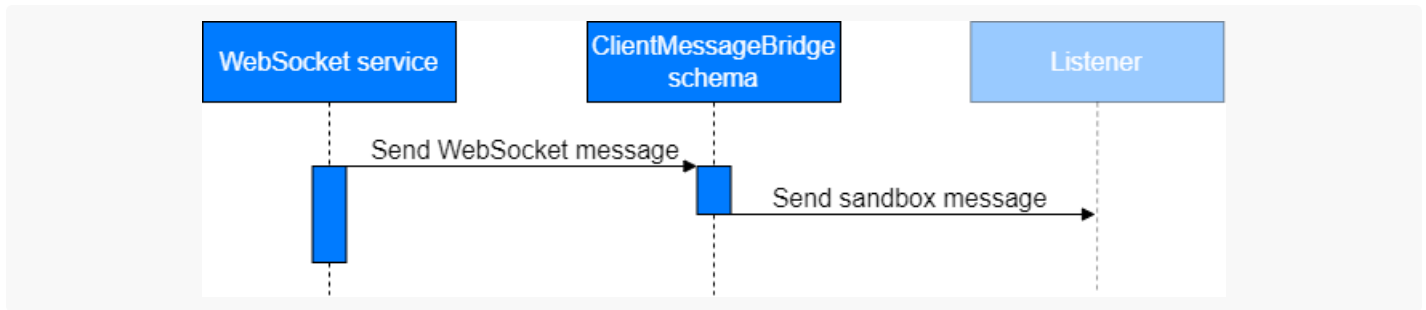
## Save the message to history

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.

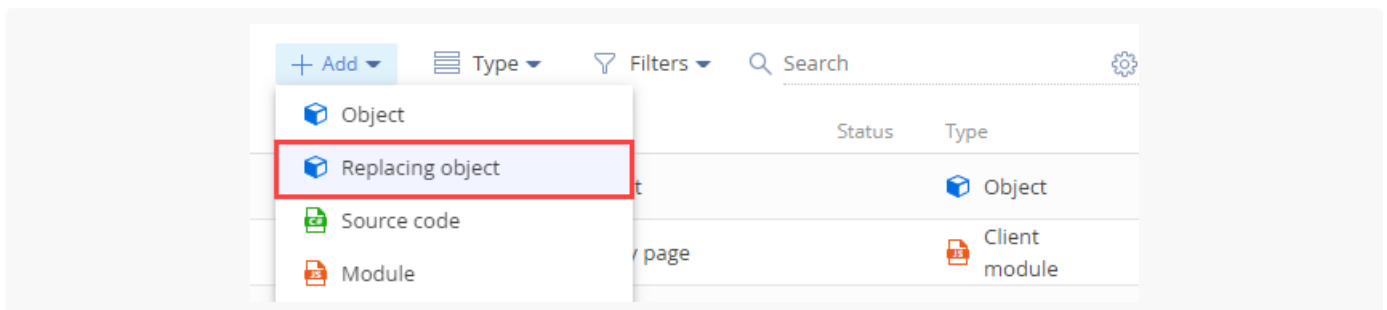
## Implement a subscriber to a WebSocket message

 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.

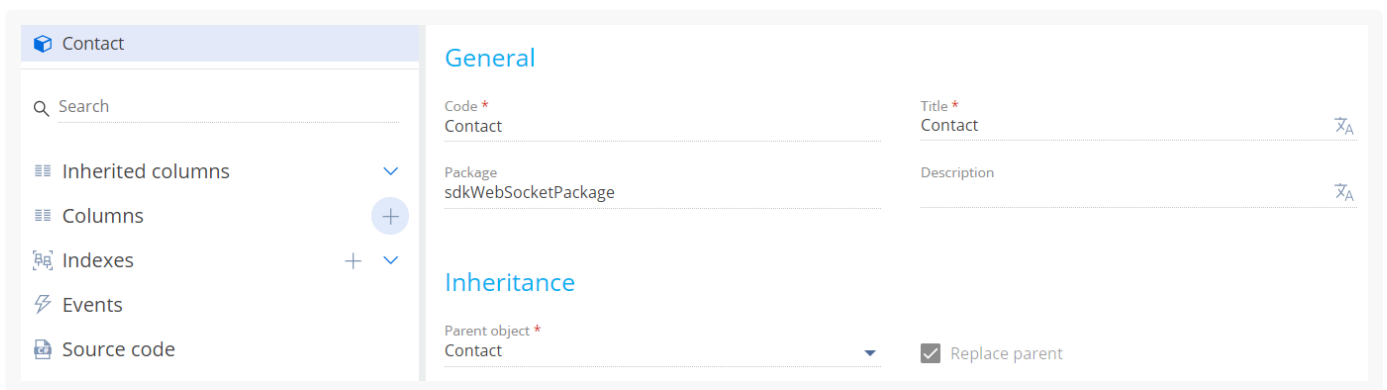
## 1. Create a replacing object schema

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

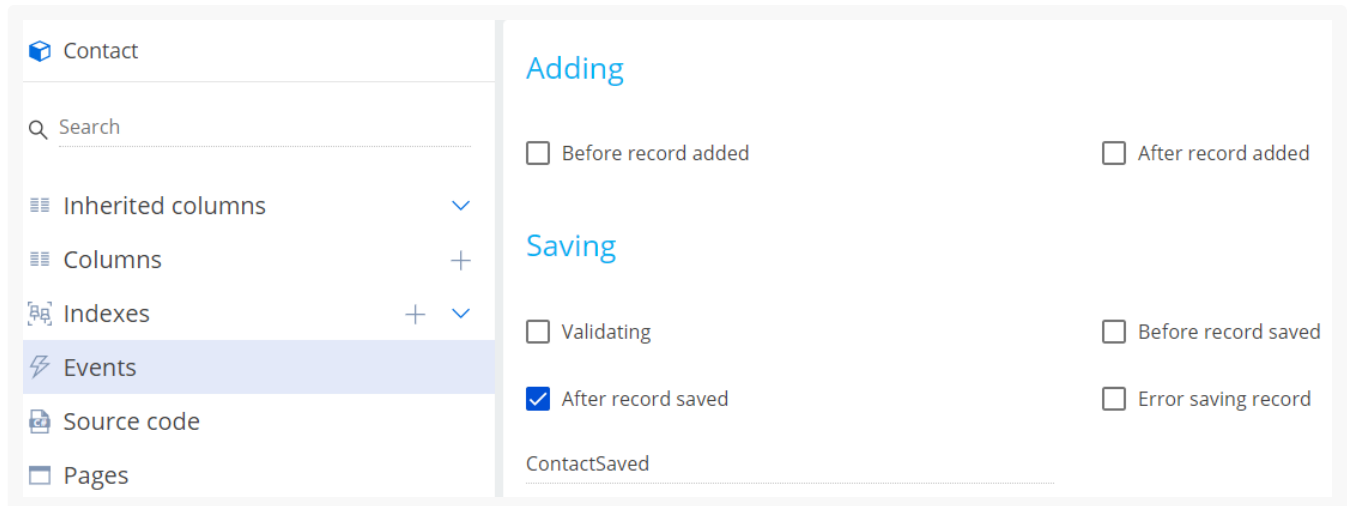


3. Fill out the **schema properties**.

- 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`.

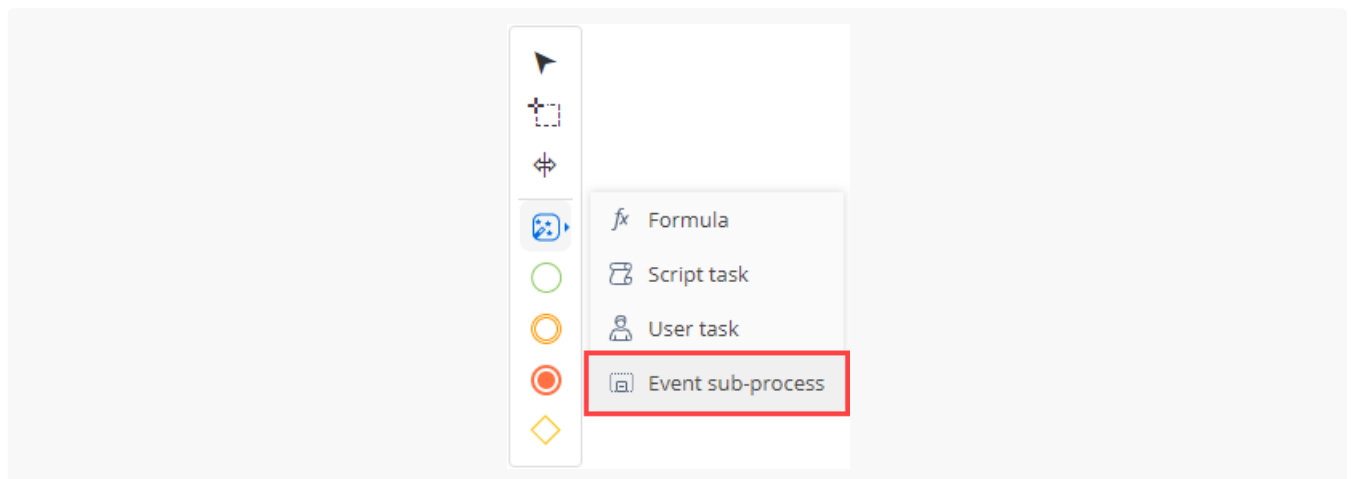


c. Click [ Save ] on the Object Designer's toolbar.

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.

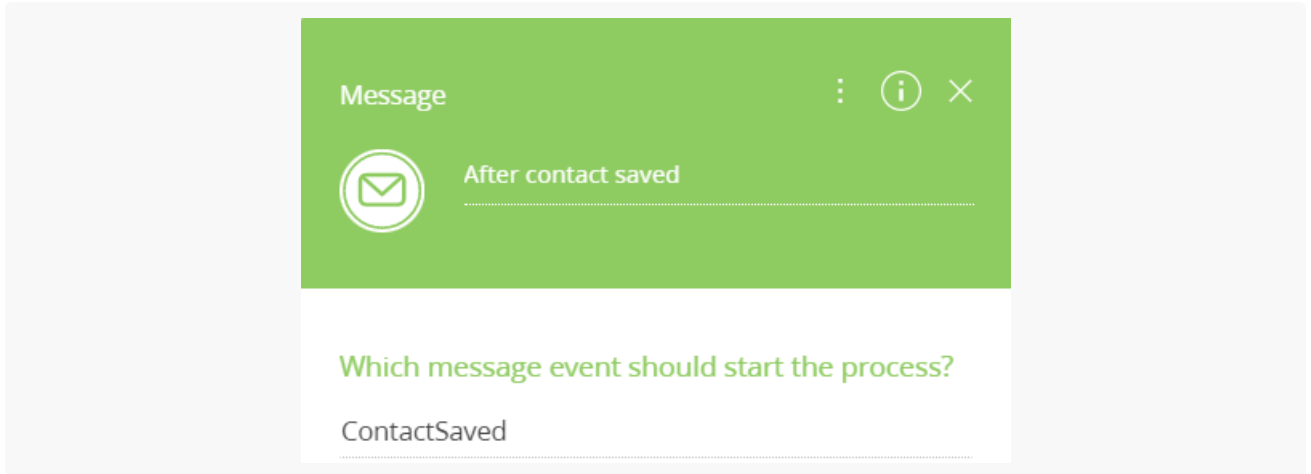


c. Set the [ Title ] property in the element setup area to "Contact Saved Sub-process."

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

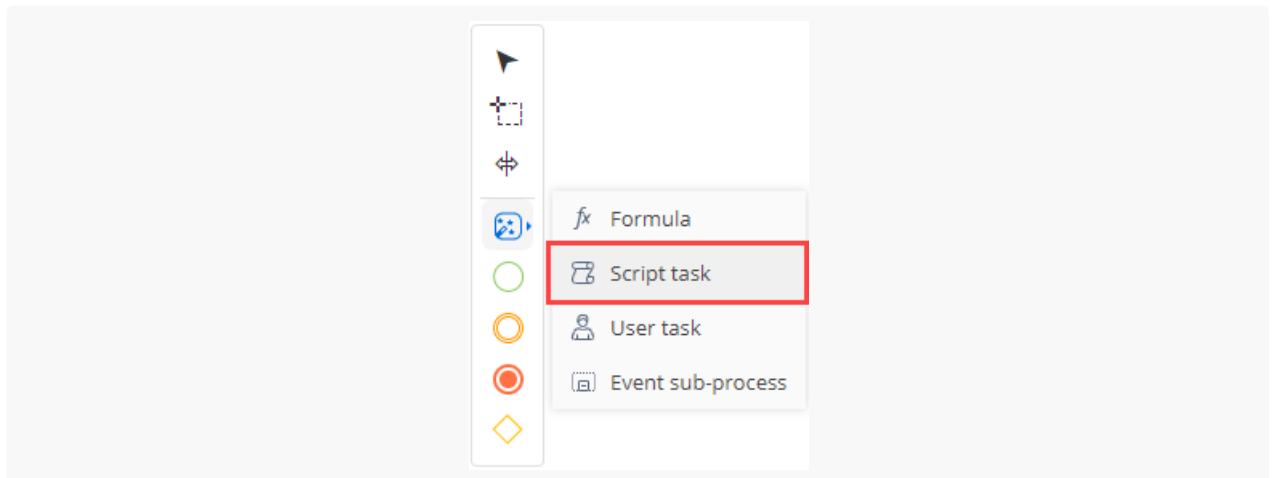
a. Set up the [ Message ] **start event**.

- 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

```

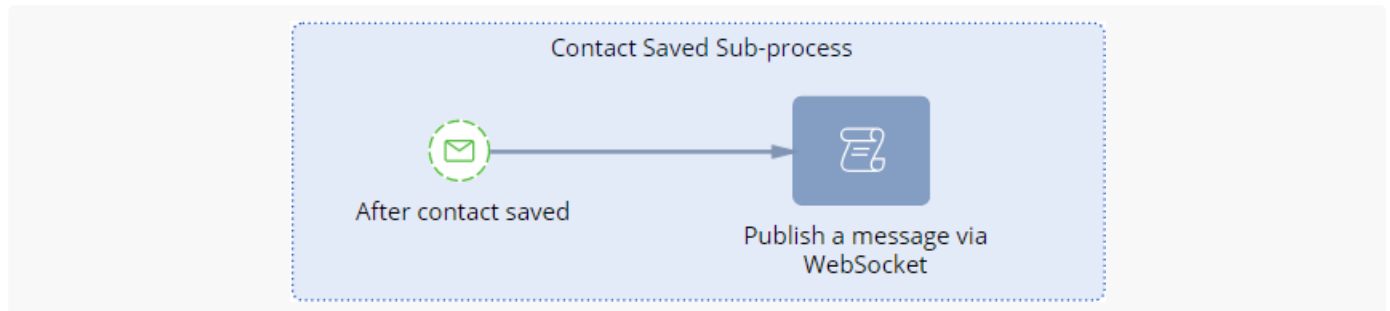
/* Receive the contact name. */
string userName = Entity.GetTypedColumnValue<string>("Name");
/* Receive the date of the contact birthday. */
DateTime birthDate = Entity.GetTypedColumnValue<DateTime>("BirthDate");
/* Generate the message text. */
string messageText = "{\\"birthday\\"": \\" + birthDate.ToString("s") + "\\", \\"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.

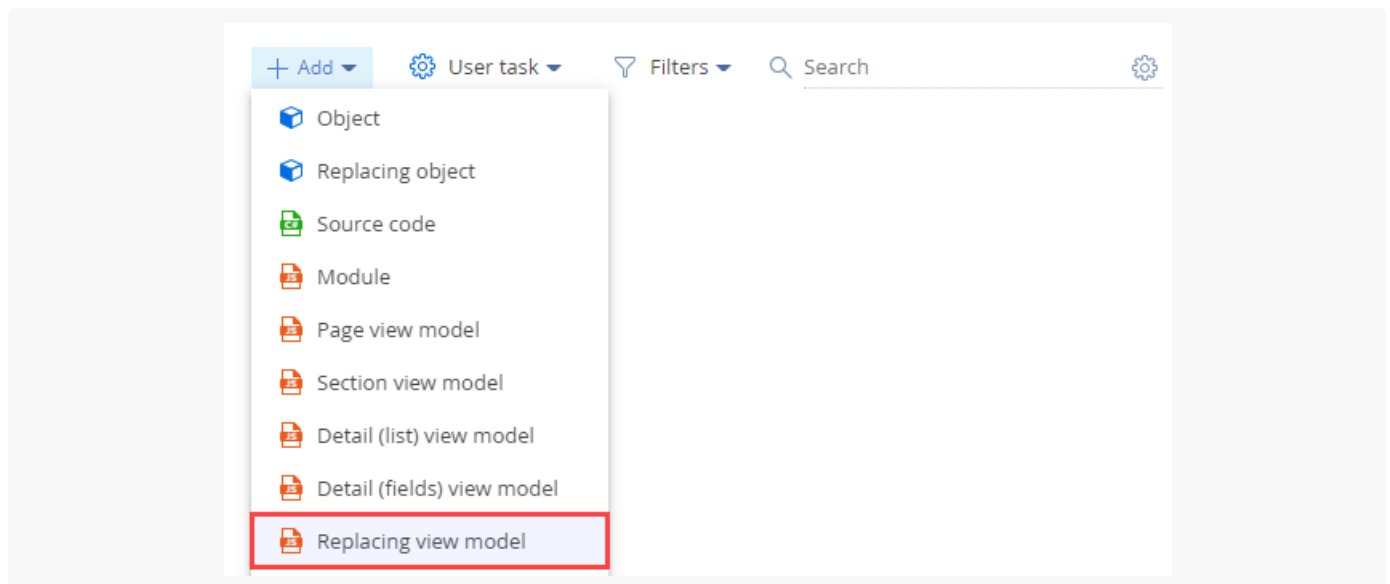
View the event sub-process in the figure below.



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.

## Module

✕

---

Code  
ClientMessageBridge

---

Title \*  
ClientMessageBridge ✕<sub>A</sub>

---

Parent object \*  
ClientMessageBridge (ClientMessageBridge) ▼

---

Package  
sdkWebSocketPackage

---

Description ✕<sub>A</sub>

---

CANCEL
APPLY

#### 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);
    }
}
};
});

```

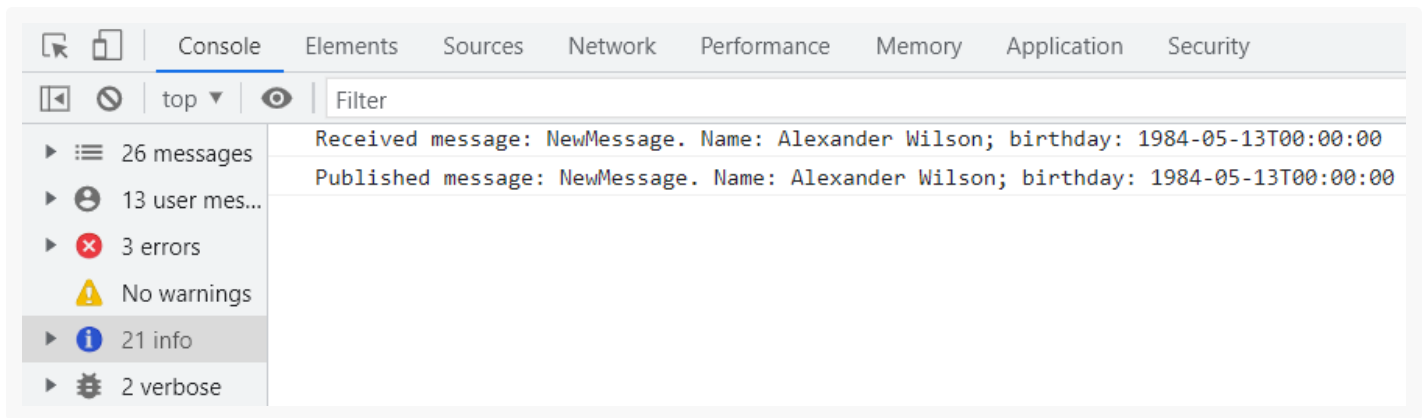
5. Click [ Save ] on the Designer's toolbar.

## 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

`LocalStorageName`

The name of the repository that stores the message history.

`LocalStorage` `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.
----------------------------	---