Data Format Description Language (DFDL) message modeling In Websphere Message Broke

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This article shows you how to use the new DFDL support in WebSphere Message Broker V8 to model, create, run, and test messages in both Text and Comma Separated Value (CSV) formats.

Introduction

DFDL is a XML-based standard that you can use to define the structure of formatted data independently from the data format itself. The following new function in IBM® WebSphere® Message Broker V8 (hereafter called Message Broker) enables you to create, run, and test DFDL models:

- DFDL Parser and domain
- DFDL Schema Creation Wizards
- DFDL Schema Editor to model text and binary data formats
- DFDL Test Perspective to test your DFDL schema files

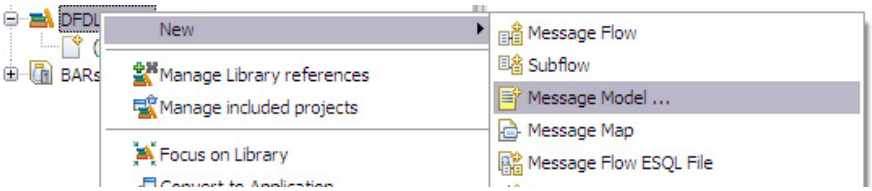
Creating a DFDL CSV message model

Here is some sample CSV data with a header record, several detail records, but no trailer record. Each row is delimited by newline, and fields within each row are delimited by commas:

```
EMP_NM, EMP_ID, EMP_DEPT
Sandi, 1234, ABC
John, 0987, JPQ
Elex, 7834, MNO
```

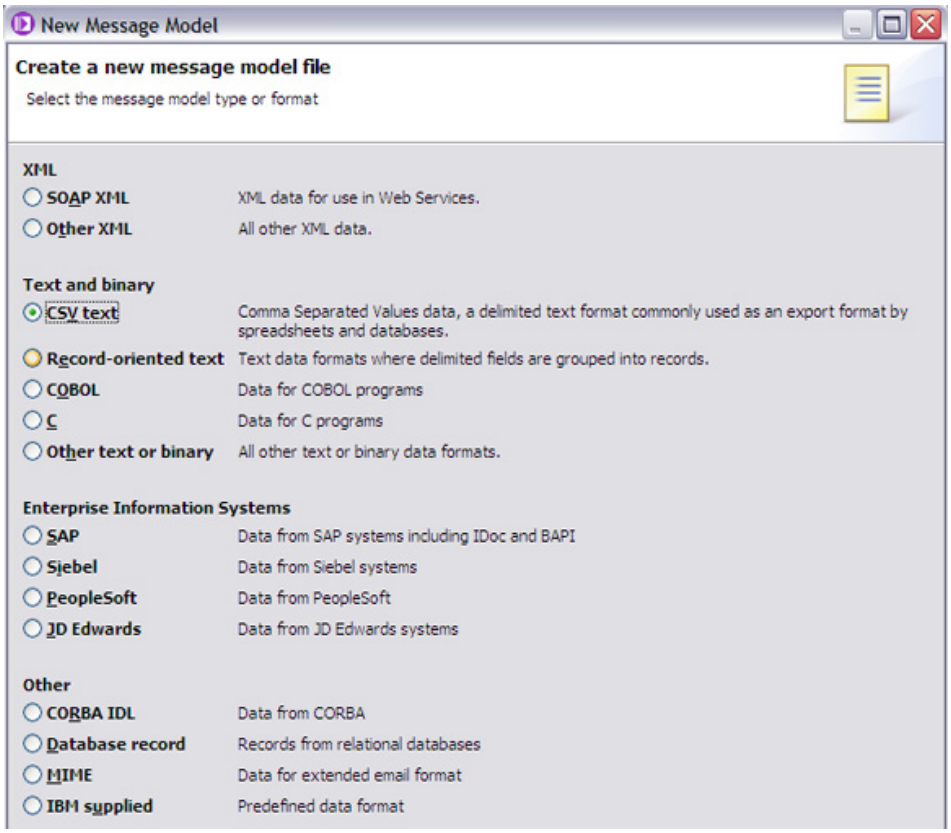
Here are the steps to creating a DFDL CSV message model:

1. Create a library named `DFDLModelLib`, right click-on it, and select **New => Message Model**:
   Figure 1



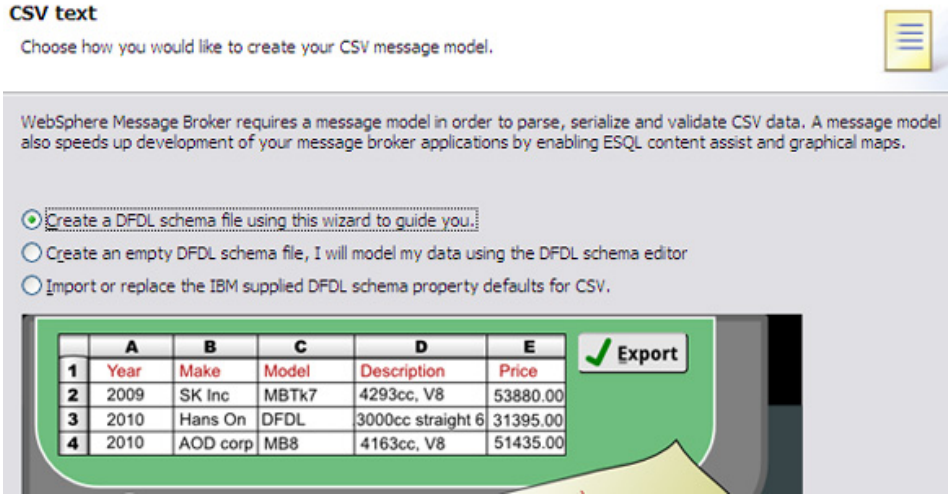
2. Select **CSV text** and click **Next**:

Figure 2



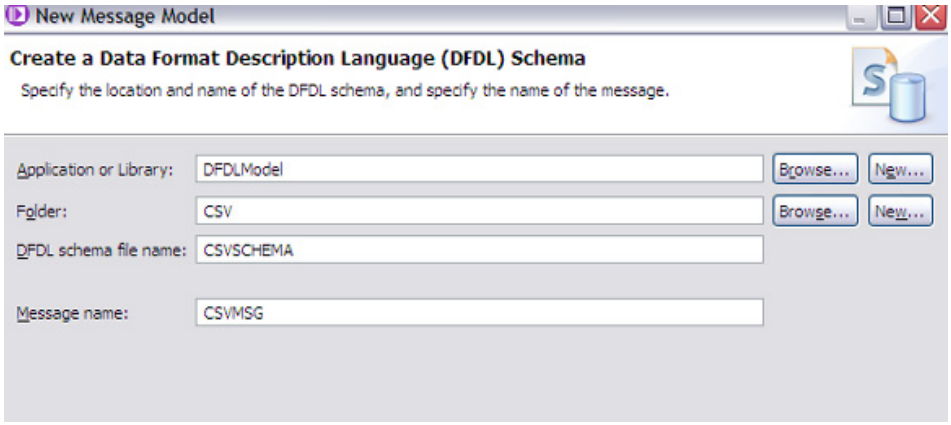
3. Choose how you want to create your message model. Select option one, which creates a DFDL schema with the default element name (you can change it later). Click **Next**:

Figure 3



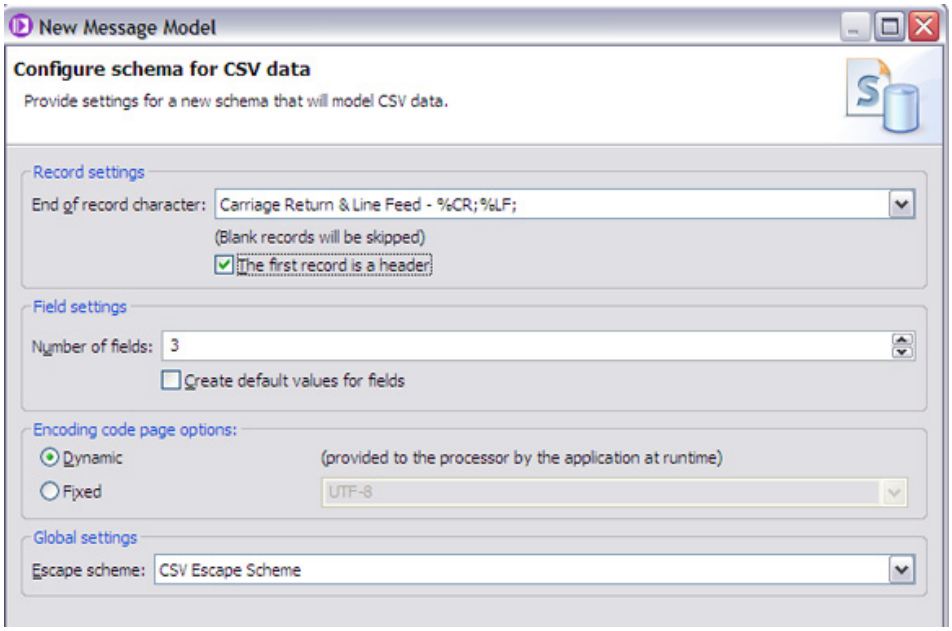
4. Provide the details as shown below. Create the `csv` folder in DFDLModelLib, and then click **Next**:

Figure 4



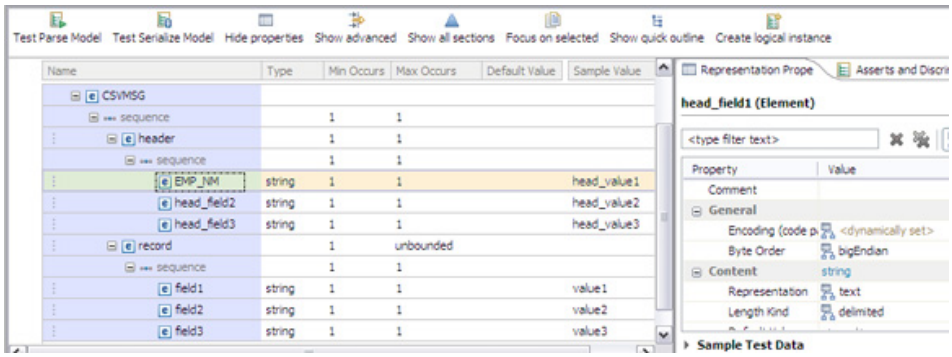
5. Provide details about the number of fields in the CSV message that is being modeled -- in this case three. Select **First Record Is Header**, and select **End of record character** to specify that each record is separated by newline. Click **Finish**:

Figure 5



6. Here is the modeled CSV message. You can edit the Header or Record field name -- as shown below, the Header field name has been changed to `EMP_NM`:

Figure 6

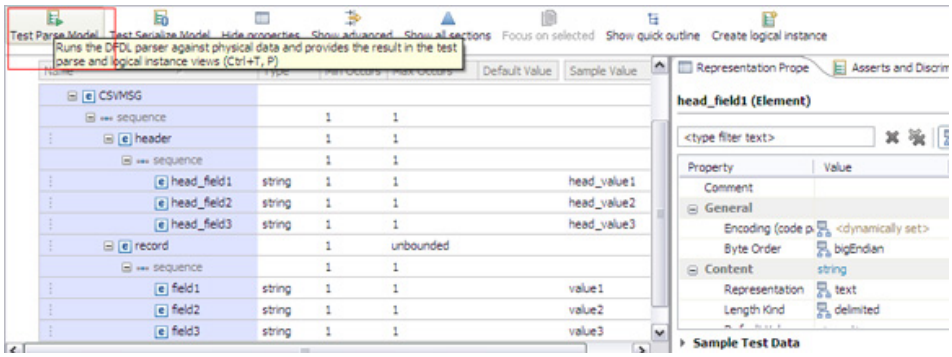


Testing the DFDL CSV message model

In a Message Broker V8 DFDL message model, you can immediately test and validate a message model with sample data:

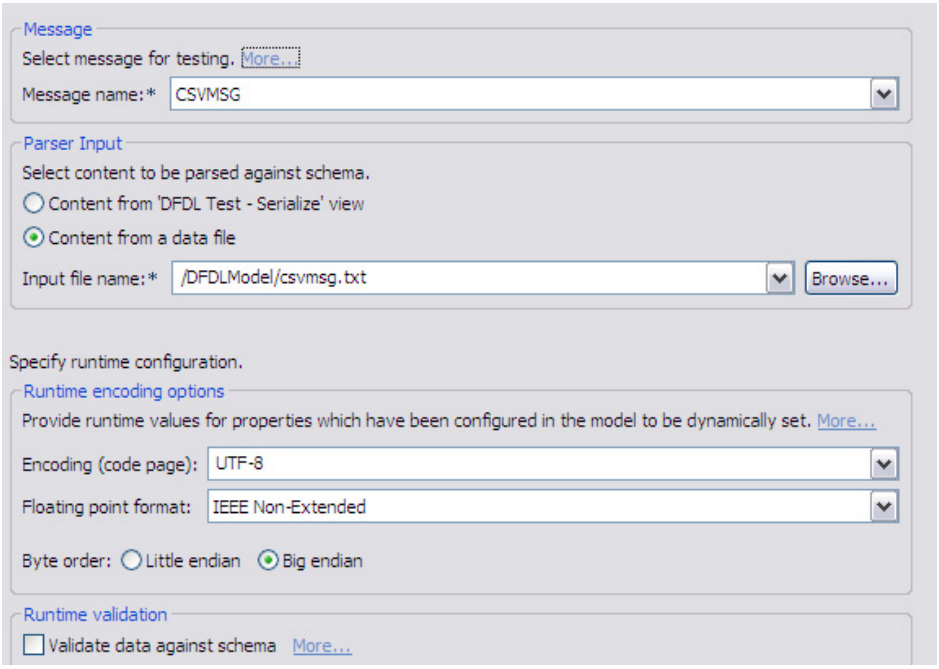
1. Click on **Test Parse Model**:

Figure 7



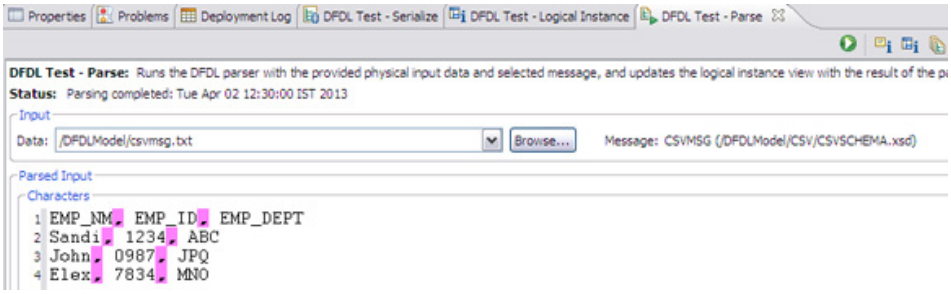
2. Provide the path of the sample CSV file and click **OK**:

Figure 8



3. The sample CSV file was successfully parsed by the DFDL CSV parser:

Figure 9



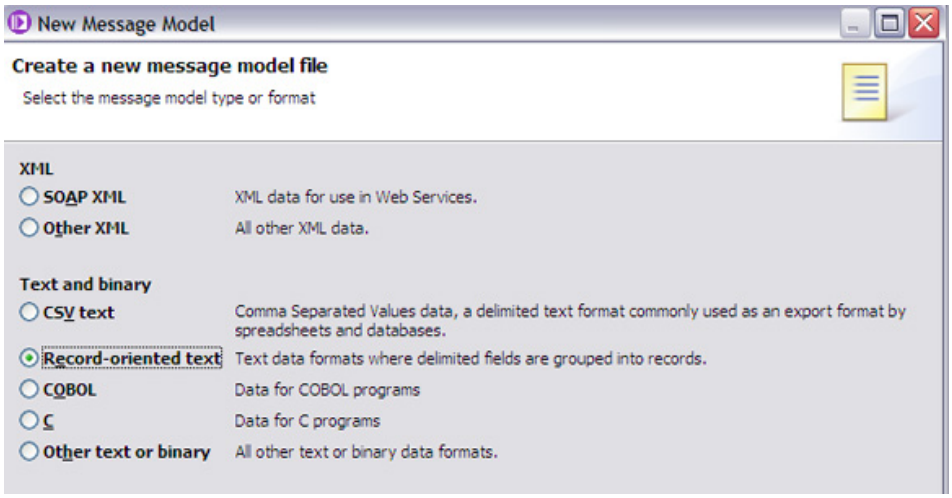
Creating a DFDL Text (TDS) message model

Here is some sample Text (TDS) data. It is comma separated, and it uses `h*`, `b*`, and `t*` as initiator for header, body, and trailer records respectively. The body data is in bold, along with the initiator `"Add["` and the terminator `"]"`:

```
h*head_val1,head_value2,head_value3
b*body_value1,Add[Add1,Add2],body_value3
t*trailer_value1,trailer_value2,trail_value3
```

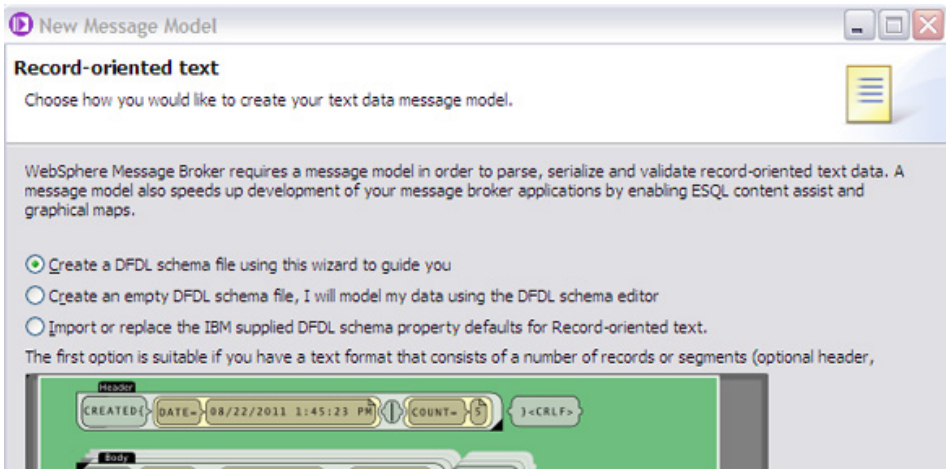
1. Right-click on **DFDLModelLib** and select **New => Message Model**.
2. On the Message Model screen, select **Record-Oriented text** and click **Next**:

Figure 10



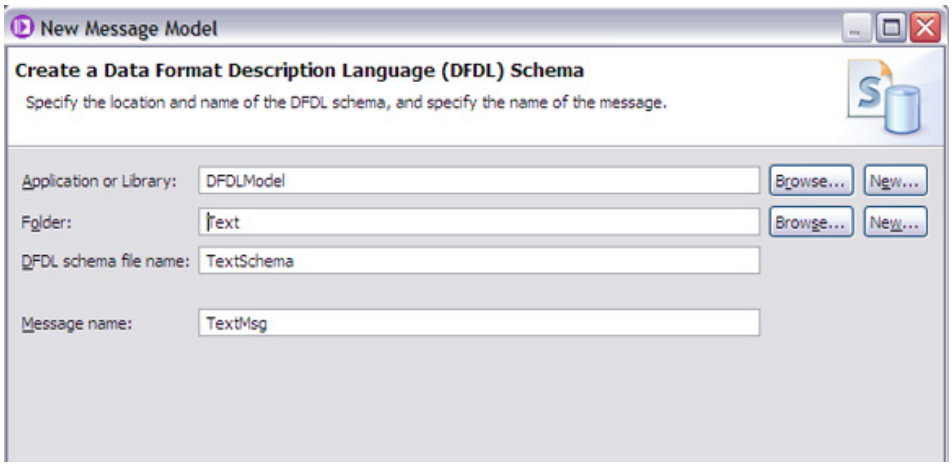
3. Choose how you want to create your Text message model. Select option one, which creates a DFDL schema with the default element name (you can change if later), and then click **Next**:

Figure 11



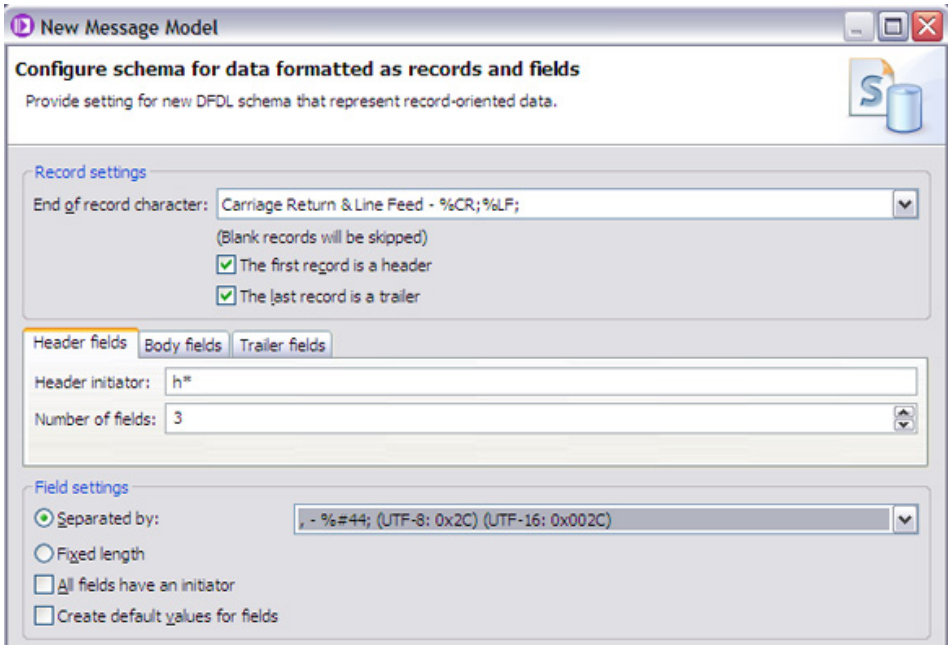
4. Provide the details as shown below. Create the `Text` folder in `DFDLModelLib`, and then click **Next**:

Figure 12



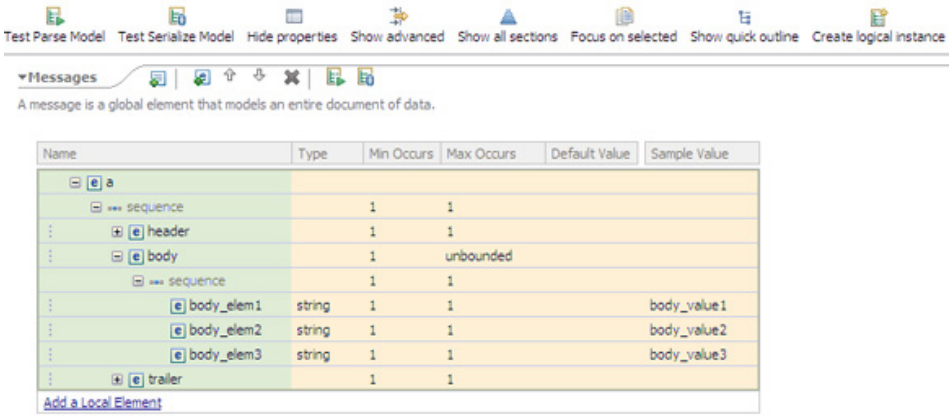
5. This screen defines initiators for the header, body, and trailer; the field separators (commas in this case), and the number of fields in the header, body and trailer. When done, click **Next**:

Figure 13



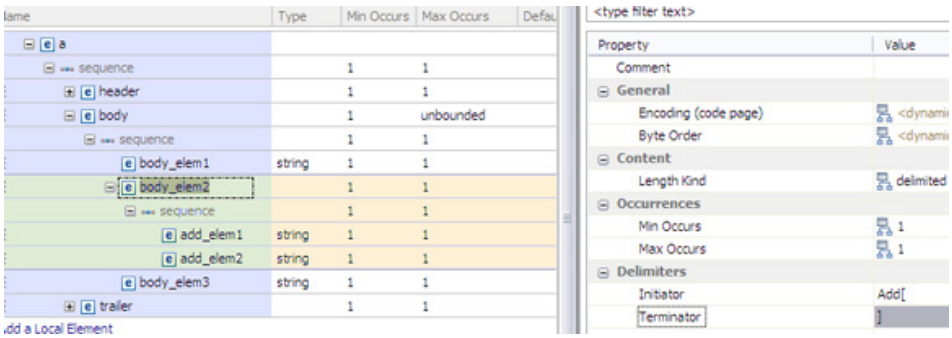
6. Here is the modeled text message:

Figure 14



7. You still need to modify the message model to accommodate the highlighted text in the body (Add [Add1, Add2]). To model the highlighted text, click on **Type** for **body_elem2**, select **Anonymous**, and then add the local elements **add_elem1** and **add_elem2**. Also provide the initiator and terminator details for body_elem2 shown below:

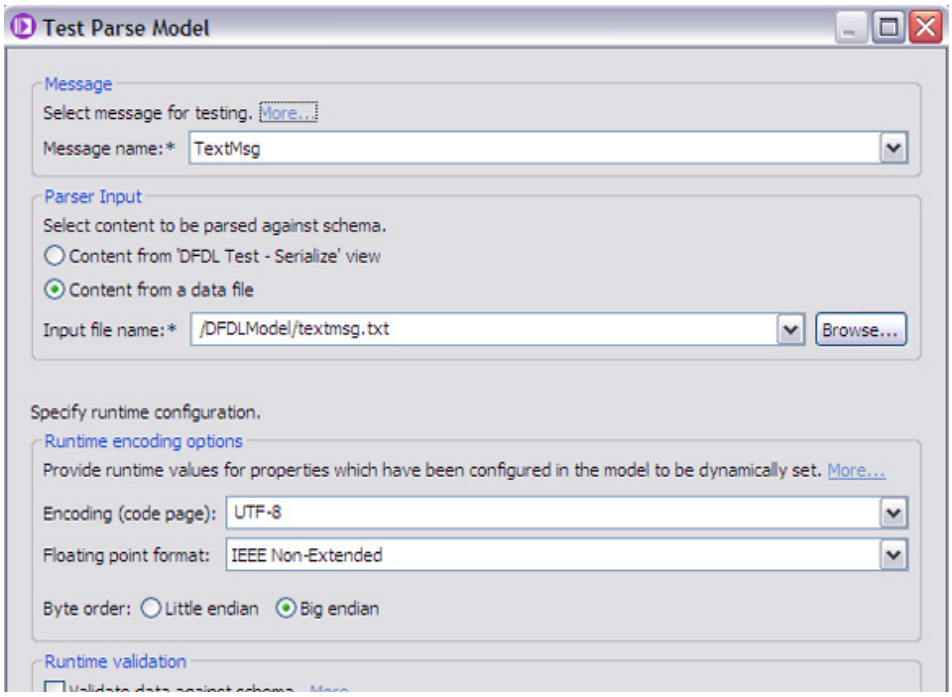
Figure 15



Testing the DFDL Text (TDS) message model

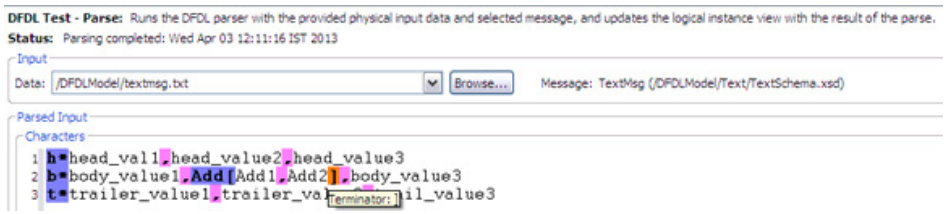
1. Click **Test Parse Model** and provide the file path for the sample text data:

Figure 16



2. The sample Text file was successfully parsed by the DFDL Parser:

Figure 17



Conclusion

Websphere Message Broker V8 now enables you to model, parse, and test DFDL message models. You can develop and test model definitions in the WebSphere Message Broker Toolkit without deploying to a running broker instance. The DFDL Parser provides an efficient and open-standards-based way to access, parse, and transform data in many different formats, with a focus on text and binary data.

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    A searchable database of support problems and their solutions, plus downloads, fixes, and problem tracking.
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    This course from IBM Training shows you how to use the components of the WebSphere Message Broker development and runtime environments to develop and troubleshoot message flows that use ESQL, Java, and PHP to transform messages.
  - Youtube tutorial: Integrating Microsoft .NET code in a WebSphere Message Broker V8 message flow
    This five-minute youtube tutorial shows you how simple it is to use WebSphere Message Broker V8 to build a message flow that includes Microsoft .NET code. Microsoft Visual Studio is used to build .NET code in C#, which is then integrated into a message flow using Message Broker and an HTTP RESTful interface.
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