

MFT Use Case 5: MFT and SOA Composite Integration using SOAP

Purpose

Shows how MFT can communicate via SOAP to a SOA Suite composite where MFT applies built-in pre-processing actions

Extension 1 Synopsis

Accepts unencrypted XML typed file based on the OrderSample.xsd sent over SOAP from a SOA composite where the MFT transfers applies PGP encryption and compression before archiving the file using an MFT File target.

Transfer Details

Orders2ProcurementTransfer

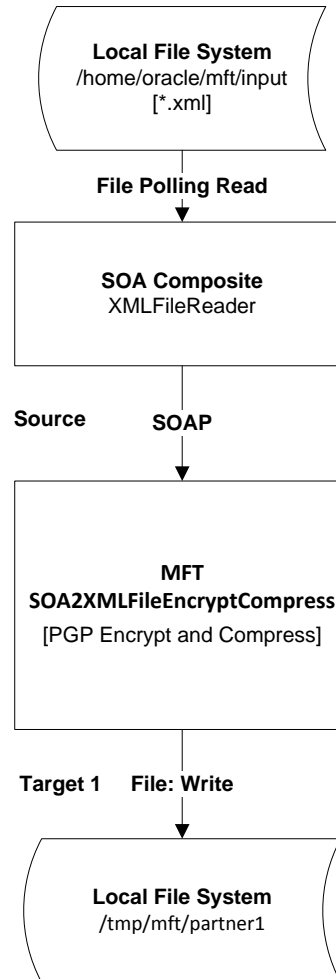
Source: SOAXMLReceiver

- **Type:** SOA
- **Location:** SOAXMLData

Target 1: SOAXMLFileWriter

- **Type:** File
- **Location:** /tmp/mft/SOAXMLData
- **Pre-Processing Actions:**
 1. **PGP Encryption:**
 - **Encryption Alias:** SamplePublicAlias
 - **Armored:** Binary
 2. **Compress:**
 - **Level:** Best Compression

Diagram



Notes

This use case will require that SOA Suite 11g has access to the same local file system if the SOA composite sends file data by reference (currently not supported). The **SOA2XMLFileEncryptCompress** shows SOA to MFT integration where a file needs to be sent an external party presumably over sFTP that requires PGP encryption and compression. **This use case also shows how to integrate MFT over SOAP and therefore applies to any product or technology that supports web services (e.g., OSB or Java web services).**

There is one SOA composite used for this flow. The composite called **XMLFileReader** uses the JCA File Adapter to read order XML files sending the data in the SOAP request to MFT where MFT replies with **Success** when SOAP message is consumed. MFT will throw a SOAP fault to indicate an error has occurred. The MFT transfer **SOA2XMLFileEncryptCompress** accepts the XML data and applies PGP encryption and then compresses the file before archiving the processed files in the local directory. *An enhancement to this flow would be adding logic to the SOA composite pass the file by reference to MFT whenever the file is greater than a configurable number of bytes.*

Tips

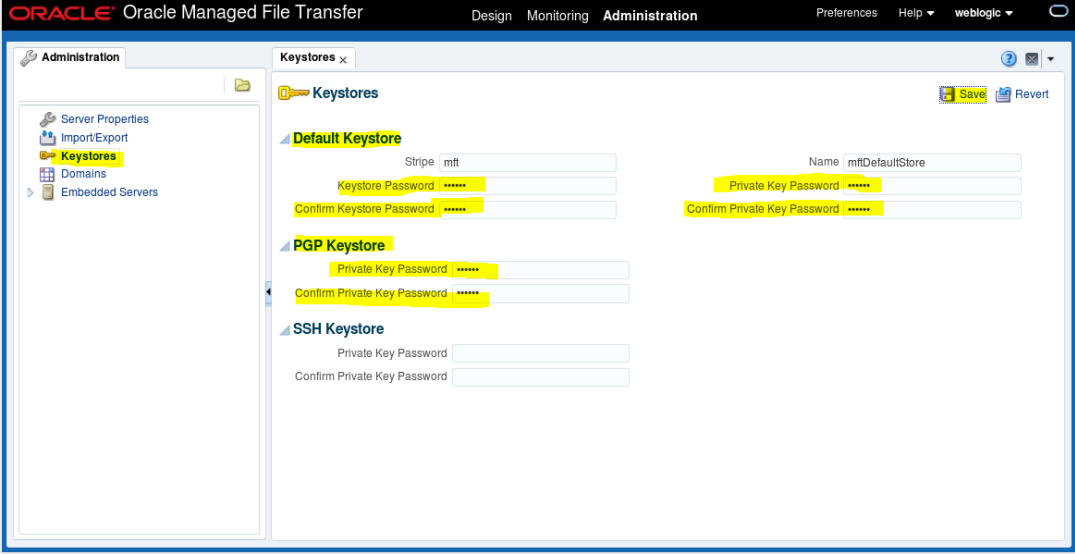
Use the MFT Discovery Service <http://soabpm-vm.site:7601/inspection.wsil> to locate the **mftapp** web services URL (<http://soabpm-vm.site:7601/inspection.wsil?appname=mft-app>) to find the MFT WSDL. This WSDL can be constructed by appending the MFT SOA source's **Location** of **SOAXMLData?WSDL** to <http://<hostname>:<port>/mftapp/services/> to. The WSDL to consume for this MFT SOA source is <http://soabpm-vm.site:7601/mftapp/services/transfer/SOAXMLData?WSDL>

Configuration and Run

The following are the prerequisites to configure and run this use case:

- This use case requires a simple but working installation of MFT 12c and SOA Suite 11g **that are already started running on the same host**
- The steps provided below were performed on Oracle Enterprise Linux (64 bit) using an Oracle Virtual Box image (Virtual machine for Oracle SOA Suite, Oracle BPM Suite, Oracle Service Bus and Oracle Event Processing 11g 11.1.1.7.0 (a.k.a. PS6)): **no steps are provided for other operating systems**
- When logging into the MFT or SOA Suite consoles, use the admin user (e.g., **weblogic** on the Virtual Box image) unless noted
- The following files located in **mft-use-case-5-extension-1.zip** are needed to configure and test this use case:
 - **XMLFileReader_soa.zip**: initiates the use case by accepting XML files and forwarding them to the MFT transfer via SOAP
 - **SOA2XMLFileEncryptCompress_export.zip**: receives XML file data via SOAP, compressing and PGP encrypting this data, storing the output to a File target
 - **pgp/importCSFKey.py**: a WLST script that imports sample PGP public and private keys (located in the **pgp** directory) that are required by the MFT processing actions PGP encrypt and decrypt
 - **data/OrderSample.xml**: use to test this use case to show passing data within the SOAP request between MFT and SOA Suite
 - **data/ OrderSampleLarge.xml**: use to test this use case to show passing larger data within the SOAP request between MFT and SOA Suite (**mainly used if this use case extensions adds passing by reference for large XML files**)

The following are the steps to configure and run this use case:

Step	Action
1.	<p>Unzip the file mft-use-case-5-extension-1.zip into a working directory:</p> <pre>[oracle@soabpm-vm 5]\$ pwd /home/oracle/qa/5 [oracle@soabpm-vm 5]\$ unzip /media/sf_VirtualBoxShare/mft/QA/mft-use-case-5-extension-1.zip Archive: /media/sf_VirtualBoxShare/mft/QA/mft-use-case-5-extension-1.zip creating: extension-1/ creating: extension-1/data/ inflating: extension-1/data/OrderSample.xml inflating: extension-1/data/OrderSampleLarge.xml inflating: extension-1/mft-use-case-5-extension-1.pdf creating: extension-1/pgp/ inflating: extension-1/pgp/importCSFKey.py inflating: extension-1/pgp/test_pgp_private.asc inflating: extension-1/pgp/test_pgp_public.asc inflating: extension-1/SOA2XMLFileEncryptCompress_export.zip inflating: extension-1/XMLFileReader_soa.zip [oracle@soabpm-vm 5]\$</pre>
2.	<p>Configure PGP Encryption to use provided sample keys into MFT. This step can be skipped if already done for another MFT use case. Logon onto the MFT console and set the MFT Default Key Store Password and Private Key Password and the PGP Private Key Password all to welcome1 by selecting Administration->Keystores and setting all appropriate fields as highlighted below and then selecting Save:</p>  <p>Next edit the importCSFKey.py file located in the pgp subdirectory of the use case zip if required to change the port from the default of 7601 and possibly the WebLogic server default admin username and password from weblogic and welcome1, respectively. The host can stay localhost since the script should be run on the same machine as the MFT WebLogic server and look for the following line, make any changes and save:</p> <pre>connect("weblogic", "welcome1", "t3://localhost:7601")</pre> <p>Run the WLST script command wlst.sh using the command inside of the WebLogic Server home directory from the pgp subdirectory:</p> <pre>cd /home/oracle/qa/5/base/pgp /home/oracle/Middleware/MFT12.1.3/mft/common/bin/wlst.sh importCSFKey.py</pre>

```

[oracle@soabpm-vm pgp]$ pwd
/home/oracle/qa/5/base/pgp
[oracle@soabpm-vm pgp]$ /home/oracle/Middleware/MFT12.1.3/mft/common/bin/wlst.sh importCSFKey.py
CLASSPATH=/home/oracle/Middleware/MFT12.1.3/mft/modules/oracle.mft_12.1.3.0/core-12.1.1.0.jar

Initializing WebLogic Scripting Tool (WLST) ...

Welcome to WebLogic Server Administration Scripting Shell

Type help() for help on available commands

/home/oracle/qa/5/base/pgp
/home/oracle/qa/5/base/pgp/test_pgp_private.asc
/home/oracle/qa/5/base/pgp/test_pgp_public.asc
Connecting to t3://localhost:7601 with userid weblogic ...
Successfully connected to Admin Server "AdminServer" that belongs to domain "mft_domain".

Warning: An insecure protocol was used to connect to the
server. To ensure on-the-wire security, the SSL port or
Admin port should be used instead.

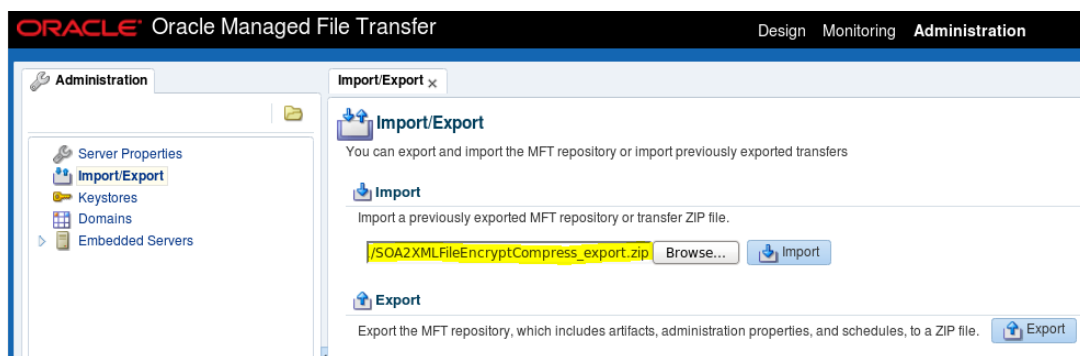
Key Details
-----
Key Details
-----
CSF key deleted
CSF key deleted
CSF key imported successfully.
CSF key imported successfully.
Key Details
-----
'SamplePrivateAlias', No Expiration Date, Created Feb 05, 2013, Version 4, RSA_SIGN

Key Details
-----
'SamplePublicAlias', No Expiration Date, Created Feb 05, 2013, Version 4, RSA_GENERAL

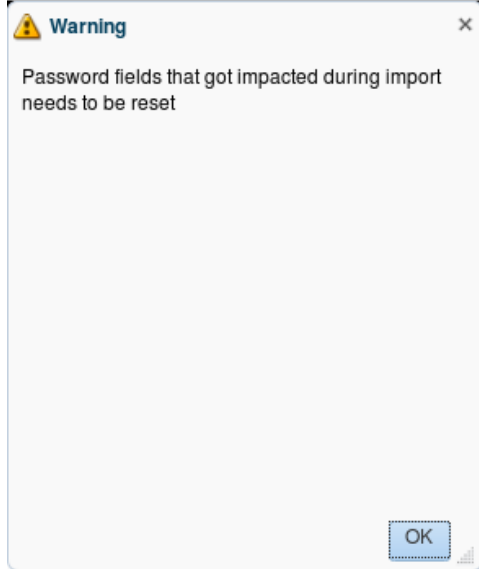
Exiting WebLogic Scripting Tool.

```

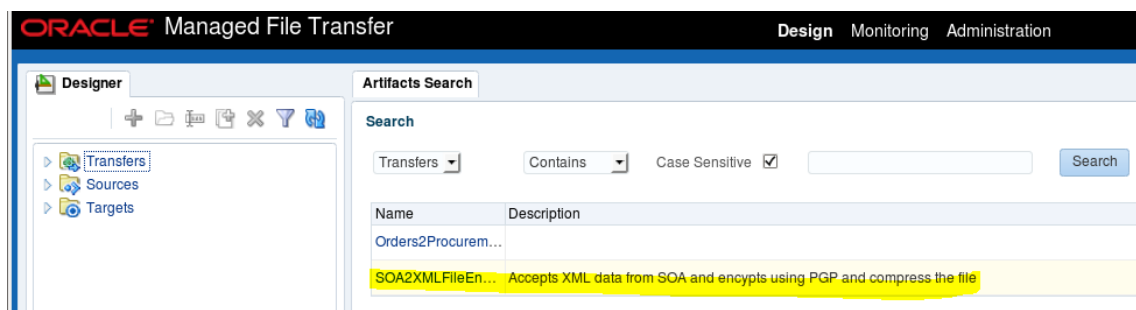
3. Logon onto the MFT console and import the **SOA2XMLFileEncryptCompress_export.zip** transfer file by selecting **Administration->Import/Export** and then selecting **Browse** and **Import**:



Click **OK** on this Warning page after selecting Import:



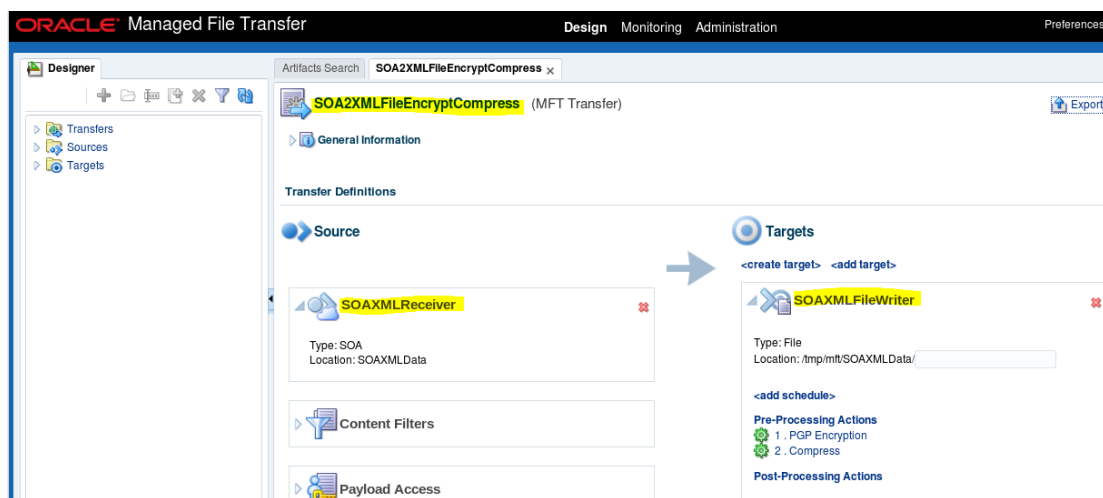
Verify the import by selecting **Design** and observing **SOA2XMLFileEn...** in the **Artifacts Search** tab:



The MFT transfer import is complete

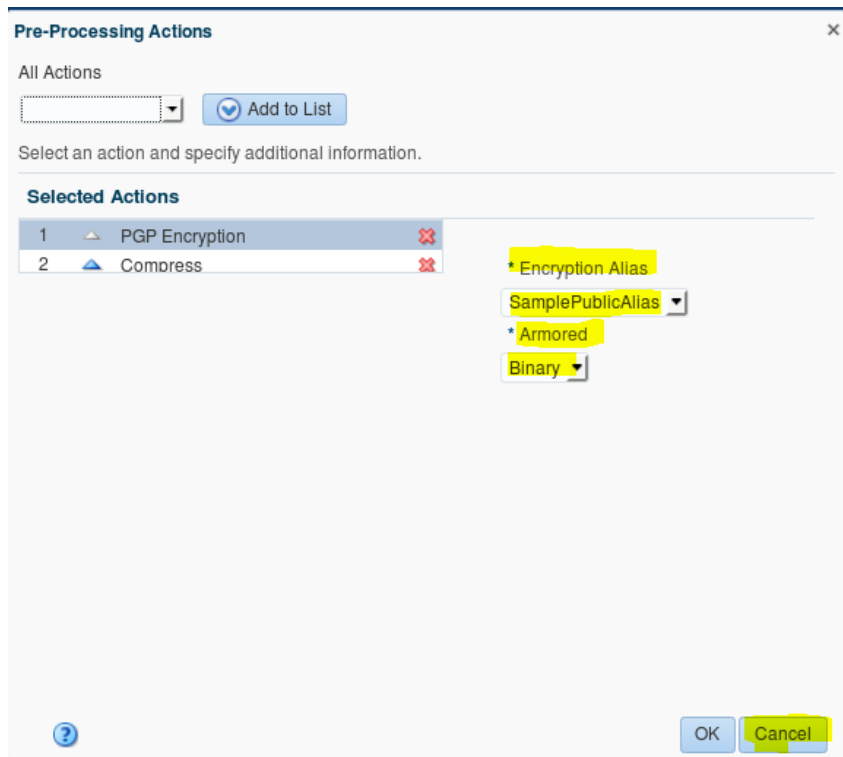
- Review the details of this transfer by selecting **SOA2XMLFileEn ...** and observing the following:

Make sure **/tmp/mft** directory is created or at least **/tmp** is writable by the **oracle** user or equivalent for the MFT target's output files (change the target if necessary – steps not shown)



Then verify the imported PGP key aliases is assigned to the MFT target pre processing action by selecting the **PGP**

Encryption processing action and observe the **Encryption Alias** is assigned to **SamplePublicAlias** and **Armored** is **Binary** and the click **Cancel**:



5. Reset the Domain Alias passwords for soabpm by selecting **Administration->Domains** and setting the **Password** and **Confirm Password** fields for **weblogic** user to **welcome1** as highlighted below and then selecting **Save**:

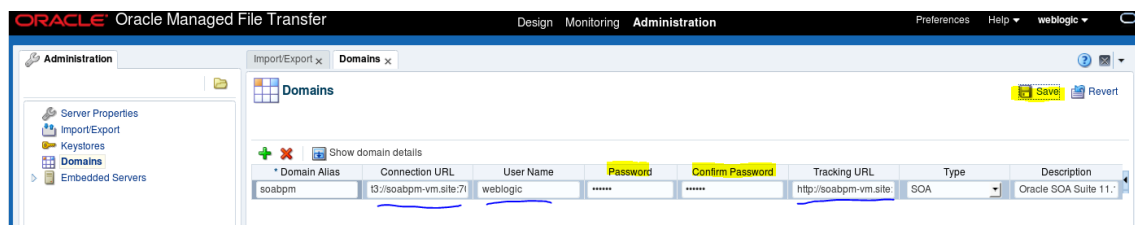
The following values may need to change if not using these Virtual Box image highlighted values:

Connect URL hostname, port: **t3://soabpm-vm.site:7001**

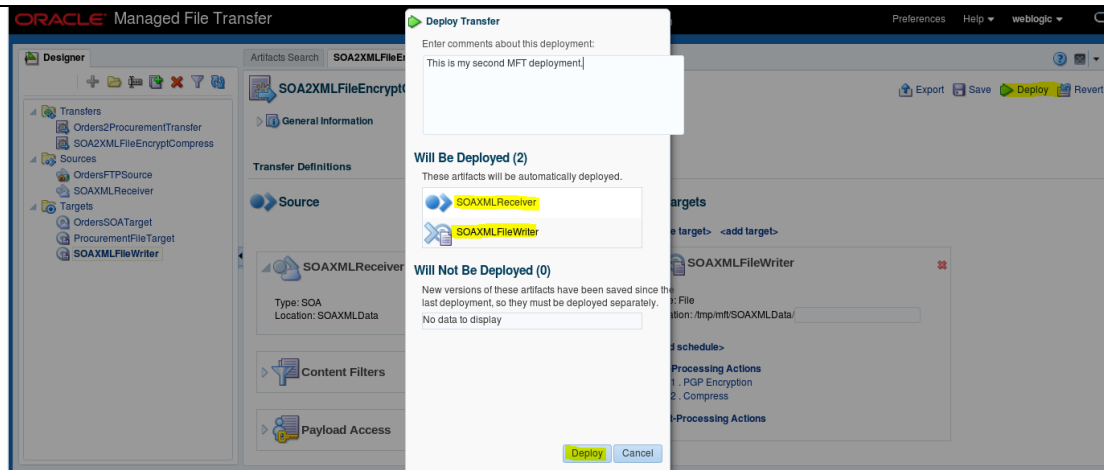
User Name: **weblogic**

Tracking URL hostname, port and domain (all caps): **http://soabpm-vm.site:7001**

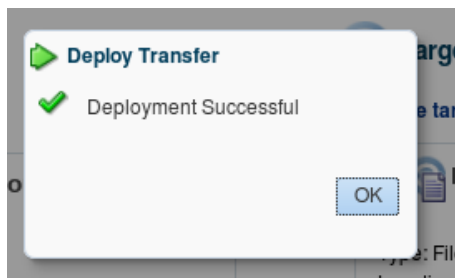
#DEV_SOASUITE



6. Deploy MFT transfer **SOA2XMLFileEncryptCompress** by selecting **Design** and then select **Deploy** in the main page and the **Deploy** again in the popup window (notice the contents of the deployment and optionally add a description):



Click **OK** on the Deploy Transfer window that indicates the deployment was successful



7. Extract the contents of the **XMLFileReader_soa.zip** to prepare to deploy to the SOA Suite:

```
[oracle@soabpm-vm extension-1]$ pwd
/home/oracle/qa/5/extension-1
[oracle@soabpm-vm extension-1]$ unzip XMLFileReader_soa.zip
Archive:  XMLFileReader_soa.zip
  creating:  FileToFTPProxy/
   inflating: XMLFileReader/XMLFileReader_cfgpln.xml
  ...
   inflating: XMLFileReader/deploy/sca_XMLFileReader_rev1.0.jar
  ...
```

8. Update the **XMLFileReader** SOA composite configuration plan if Virtual Box is not being used or the hostname and port of MFT is different from the default of **soabpm-vm.site:7601** (3 locations) in the file **XMLFileReader/XMLFileReader_cfgpln.xml** and save:

```
<import>
  <searchReplace>
    <search>http://localhost:7601</search>
    <replace>http://soabpm-vm.site:7601</replace>
  </searchReplace>
</import>

<reference name="MFTXMLReceiverService">
  <!--Add search and replace rules for the binding properties-->
  <binding type="ws">
    <attribute name="port">

<replace>http://xmlns.oracle.com/fmw/mft/soap#wsdl.endpoint(MFTService_SOAXMLReceiver
/MFTServicePort)</replace>
    </attribute>
    <attribute name="location">
```

```

        <replace>http://soabpm-
vm.site:7601/mftapp/services/transfer/SOAXMLData?WSDL</replace>
        </attribute>
        <property name="weblogic.wsee.wsat.transaction.flowOption">
        <replace>WSDLDriven</replace>
        </property>
    </binding>
</reference>

    <wsdlAndSchema
name="ForwardXMLFile.wsdl|xsd/OrderSample.xsd|MFTSOAServiceWrapper.wsdl|InputXMLFileP
oller_file.jca|InputXMLFilePoller.wsdl">
    <searchReplace>
    <search>http://localhost:7601</search>
    <replace>http://soabpm-vm.site:7601</replace>
    </searchReplace>
</wsdlAndSchema>

```

9. Logon onto the SOA Suite 11g console and import the **XMLFileReader** SOA composite SAR file.

Create a new partition called **mft** (all lowercase) by expanding the **SOA** folder and right clicking **soa-infra** (**AdminServer**) -> **Manage Partitions** and then selecting **Create** (enter **mft**):

ORACLE Enterprise Manager 11g Fusion Middleware Control

Farm Topology

soa-infra SOA Infrastructure

Confirmation
Partition mft has been created successfully.

Manage Partitions

View **Create ...** **Delete ...** Composites Control Deployment

SOA Partition	Composites		View	Total
	Active	Retired		
default	4	0		0
mft	0	0		0

Select the **mft** link in the above screenshot and select **Deployment->Deploy To This Partition ...** and then select **Browse** to deploy the composite **XMLFileReader** (note archive must be on the same machine as the browser) and the second **Browse** to attach the composite's **XMLFileReader** configuration plan:

ORACLE Enterprise Manager 11g Fusion Middleware Control Help

mft (Oracle SOA Partition) : Deploy SOA Composite

Select Archive Select Target Confirmation

Select Archive Cancel Step 1 of 3 **Next**

This wizard lets you create a runtime environment for SOA composite applications. Once this operation is performed, these applications can be administered using Oracle Enterprise Manager. A single composite revision or a bundle containing revisions of multiple SOA composites can be deployed.

Specify the archive and configuration plan to deploy a single revision of a SOA composite. Or specify a ZIP file and configuration plan to deploy multiple composite revisions at once.

Archive or Exploded Directory

You can deploy a Service archive (SAR) or a ZIP file containing one or more Service archives (SARs). Ensure that the revision information for each SOA composite is provided in its application package.

☒ Archive is on the machine where this web browser is running.

☐ Archive is on the server where Enterprise Manager is running.

Browse...

Configuration Plan

The configuration plan is a file that contains the deployment settings for a SOA composite revision.

☐ No external configuration plan is required.

☒ Configuration plan is on the machine where this web browser is running.

☐ Configuration plan is on the server where Enterprise Manager is running.

Browse...

Click **Next** and **Deploy** to complete deployment of **XMLFileReader** and observe:

ORACLE Enterprise Manager 11g Fusion Middleware Control Setup Help Log Out

Farm SOA Infrastructure Topology

XMLFileReader [1.0] Logged in as weblogic | Host soabpm-vm.site
Page Refreshed Aug 22, 2014 4:02:29 PM PDT

Confirmation

Composite "XMLFileReader [1.0]" has been successfully deployed.

Running Instances 0 | Total 0 | Active Retire ... Shut Down ... Test Settings ... Related Links

Dashboard Instances Faults and Rejected Messages Unit Tests Policies

Recent Instances

Show Only Running Instances ☐ Running 0 Total 0

Instance ID	Name	Conversation ID	Instance State	Start Time
No composite instances found.				

[Show More](#)

10. Create the following directories for the SOA **XMLFileReader** composite to process the input files if using the Virtual Box image:

```
mkdir -p /home/oracle/mft/input
```

Use the SOA Suite console to update the SOA composite directory **if using a different directory**, select the **XMLFileReader** composite, scroll down and select **InputXMLFilePoller** in **Services and References**, select **Properties** and enter the updated **PhysicalDirectory (Read)** directory and hit **Apply**:

ORACLE Enterprise Manager 11g Fusion Middleware Control

Setup Help Log Out

Farm SOA Infrastructure Topology

Logged in as **weblogic** Host **soabpm-vm.site**
Page Refreshed Aug 22, 2014 4:05:09 PM PDT

XMLFileReader [1.0]
SOA Composite

XMLFileReader [1.0] > Service Home
InputXMLFilePoller (File Adapter)

Dashboard Policies Faults and Rejected Messages **Properties**

You can edit or delete the following binding properties. Click Add to add additional properties.

Apply Revert

Name (Operation)	Value
DeleteFile (Read)	true
PollingFrequency (Read)	7
UseHeaders (Read)	false
IncludeFiles (Read)	*.xml
MinimumAge (Read)	1
PhysicalDirectory (Read)	/home/oracle/mft/input
Recursive (Read)	true

11. Test this use case by dropping the small data file **OrderSample.xml** into the input directory SOA composite's **/home/oracle/mft/input** or equivalent (passing data in the SOAP request).

Check the SOA Suite **XMLFileReader** composite's audit trail for and observe the following with no errors:

Flow Trace > Instance of ForwardXMLFile

Data Refreshed Aug 22, 2014 4:14:44 PM PDT

Instance of ForwardXMLFile
This page shows BPel process instance details.

Instance ID **bpel:30003**
Started **Aug 22, 2014 4:14:29 PM**

Audit Trail Flow Sensor Values Faults

Expand a payload node to view the details.

Highlight Faults Current Audit Level: development View Raw XML

SendXMLFile

Aug 22, 2014 4:14:29 PM Started invocation of operation 'submit' on partner 'MFTXMLReceiverService'.

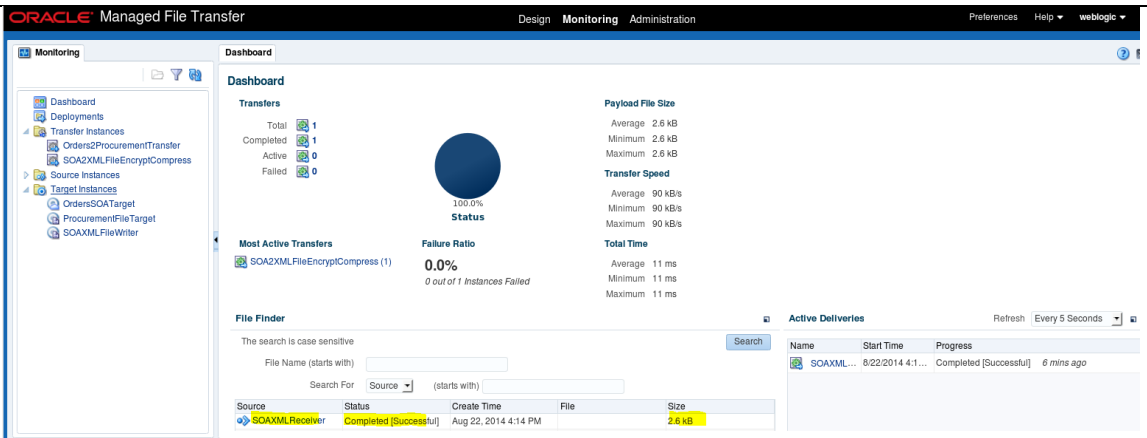
Aug 22, 2014 4:14:35 PM Invoked 2-way operation 'submit' on partner 'MFTXMLReceiverService'.

payloads

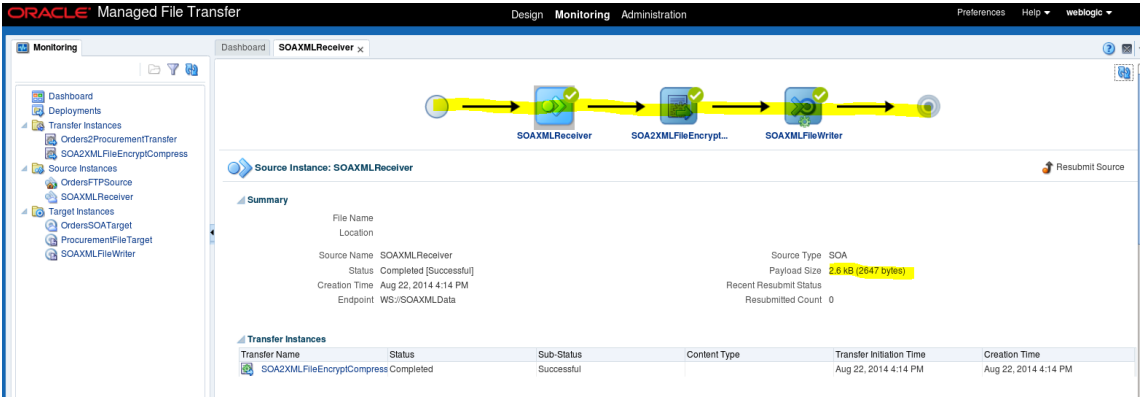
```
<messages>
  <SendXMLFileInputVariable>
    <part name="payload">
      <MFTServiceInputPayloadType>
        <inlineXML>
          <inlinePayload>
            <soas:Order xmlns:soas="http://www.w3.org/2001/XMLSchema-instance" xmlns:soas="http://www.oracle.com/soas/sample">
              <soas:CardNum>123412341234</soas:CardNum>
              <soas:ExpireDate>0316</soas:ExpireDate>
              <soas:CardName>AMEX</soas:CardName>
              <soas:CardName>AMEX</soas:CardName>
              <soas:First Name>Daniel</soas:First Name>
              <soas:Last Name>Day-Lewis</soas:Last Name>
              <soas:Address Line>353 Beverly Lane</soas:Address Line>
              <soas:City>Hollywood</soas:City>
              <soas:State>CA</soas:State>
              <soas:Zip Code>12345</soas:Zip Code>
              <soas:Phone Number>3127691108</soas:Phone Number>
              <soas:Billing Address>
                <soas:Billing>
                  <soas:Shipping>
                    <soas:Address>
                      <soas:First Name>Daniel</soas:First Name>
                      <soas:Last Name>Day-Lewis</soas:Last Name>
                      <soas:Address Line>353 Beverly Lane</soas:Address Line>
                      <soas:City>Hollywood</soas:City>
                      <soas:State>CA</soas:State>
                      <soas:Zip Code>12345</soas:Zip Code>
                      <soas:Phone Number>3127691108</soas:Phone Number>
                      <soas:Shipping Speed>Standard</soas:Shipping Speed>
                    </soas:Address>
                    <soas:Email>daniel@localhost</soas:Email>
                    <soas:Items>
                      <soas:Item>
                        <soas:SKU>32779</soas:SKU>
                        <soas:Quantity>3</soas:Quantity>
                        <soas:Unit Price>4.72</soas:Unit Price>
                      </soas:Item>
                      <soas:Item>
                        <soas:Brand>Slaker</soas:Brand>
                        <soas:Model>Water bottle</soas:Model>
                        <soas:Category>2008</soas:Category>
                        <soas:Description>Slaker Water Bottle</soas:Description>
                      </soas:Item>
                      <soas:Item>
                        <soas:SKU>30421</soas:SKU>
                        <soas:Quantity>2</soas:Quantity>
                        <soas:Unit Price>10.72</soas:Unit Price>
                      </soas:Item>
                      <soas:Item>
                        <soas:Brand>Grand Prix</soas:Brand>
                        <soas:Model>Bicycle Tires</soas:Model>
                        <soas:Category>2005</soas:Category>
                        <soas:Description>Grand Prix Bicycle Tires</soas:Description>
                      </soas:Item>
                      <soas:Item>
                        <soas:SKU>32861</soas:SKU>
                        <soas:Quantity>1</soas:Quantity>
                        <soas:Unit Price>60.72</soas:Unit Price>
                      </soas:Item>
                      <soas:Item>
                        <soas:Brand>Safe-T</soas:Brand>
                        <soas:Model>Bicycle helmet</soas:Model>
                        <soas:Category>1629</soas:Category>
                        <soas:Description>Safe-T
            </soas:Order>
          </inlinePayload>
        </MFTServiceInputPayloadType>
      </part>
    </SendXMLFileInputVariable>
    <part name="qheader">
      <MFTHeader>
        <TargetFilename>OrderSample.xml</TargetFilename>
        <Delivery Only>
          <TargetFilename>2051</TargetFilename>
          <Source User>partner1</Source User>
          <Source Name>SOAXMLReceiver</Source Name>
          <Target Name>SOAXMLFileWriter</Target Name>
          <Transfer Name>SOA2XMLFileEncryptCompress</Transfer Name>
        </Delivery Only>
      </MFTHeader>
    </part>
  </SendXMLFileInputVariable>
  <SendXMLFileOutputVariable>
    <part name="payload">
      <ns1:MFTServiceResponse>
        <Success>
          <Success>
            <Success>
              <Success>
                <Success>
                  <Success>
                    <Success>
                      <Success>
                        <Success>
                          <Success>
                        </Success>
                      </Success>
                    </Success>
                  </Success>
                </Success>
              </Success>
            </Success>
          </Success>
        </Success>
      </ns1:MFTServiceResponse>
    </part>
  </SendXMLFileOutputVariable>
</messages>
```

Aug 22, 2014 4:14:35 PM **BPel process instance "30003" completed**

Next using the **Monitoring->Dashboard** link in MFT Console and verify a transfers has been executed by selecting the **SOA2XMLFileEncryptCompress** and verifying there are no issues (**kilobytes** should be **2.6**):



Further transfer verification can be done by selecting the **SOAXMLReceiver** link highlighted above and observing no issues on the next screen (shows the file target details):



Verify a PGP encrypted, compressed file **OrderSample.xml.pgp.zip** was created in the **/tmp/mft/SOAXMLData** directory

```
[oracle@soabpm-vm extension-1]$ ls -l /tmp/mft/SOAXMLData/
total 4
-rw-r----- 1 oracle oracle 1017 Aug 22 16:14 OrderSample.xml.pgp.zip
[oracle@soabpm-vm extension-1]$
```

12. Optionally test this use case by dropping the large data file **OrderSampleLarge.xml** into the input directory **/home/oracle/mft/input** or equivalent.

Verify a PGP encrypted, compressed file **OrderSampleLarge.xml.pgp.zip** was created in the **/tmp/mft/SOAXMLData** directory

```
[oracle@soabpm-vm extension-1]$ ls -l /tmp/mft/partner1/
total 2368
-rw-r----- 1 oracle oracle 2651 Aug 20 14:41 OrderSample8.xml
-rw-r----- 1 oracle oracle 2420451 Aug 20 15:26 OrderSampleLarge.xml
[oracle@soabpm-vm extension-1]$
```

13. This use case has been has now been configured and tested.