

# Oracle Managed File Getting Started - Transfer FTP Server to File

## Table of Contents

- Goals ..... 3
- High-Level Steps ..... 4
  - Basic FTP to File with Compression ..... 4
- Steps in Detail ..... 4
  - MFT Console: Login and go to “MFT Design” page ..... 4
  - Transfer: Create a new Transfer "Orders2ProcurementTransfer" ..... 5
  - Transfer: Click on <create source> to create a new Source ..... 5
  - Transfer: Click on <create target> to create a new Target ..... 6
  - Transfer: Add a Source Content Filter by Expanding Content Filters ..... 7
  - Transfer: Add Target Pre-processing Actions Decompress and PGP Decryption ..... 7
  - Transfer: Override the File Target Location ..... 8
  - Transfer: Save and Deploy ..... 8
  - Verify Deployment ..... 9
  - Create the FTP User in the WLS Console ..... 9
  - Secure Users FTP Folder ..... 11
  - Test Using Newly Created User ..... 12
  - Monitor and View the Instance Reports ..... 13
- Dashboard Details and Metrics Reports ..... 14
  - Dashboard Components ..... 14
  - Fine Grained Metrics Reports ..... 17
- Appendixes ..... 20
  - Install Overview ..... 20
    - Install Pre-Requisites ..... 20
    - Installation Steps ..... 21
  - Post Install Configuration ..... 21

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Configure PGP.....	21
Testing .....	22

## Prerequisites

- MFT server is installed, configured and running
- PGP certificates from the MFT samples.zip file have been imported and server keystore passwords set. See [Appendix A](#) below for more information on this.
- Sample input files from the expanded samples.zip file
  1. Example: /oracle/training/samples/mft/sample\_input
- Identify your server hostname and http port. These labs use localhost:7001 but you may need to substitute to match your installed environment.
- Identify your Username and password from the install/configuration step
- Download an FTP client such as FireFTP, FileZilla or you can use gFTP on Linux
  1. <http://fireftp.net/>
  2. <https://filezilla-project.org/download.php>

## Goals

In this lab, you will learn the basics of MFT by setting up a flow that receives a file into the embedded FTP server, decompresses and decrypts it then copies it to a shared file system for an internal application to use. Additionally, you will deploy and test the scenario to get an understanding of Design and Monitoring features in the MFT web console. You will also see the MFT WebLogic Security integration where user access to the embedded FTP servers is created in the Weblogic console. The completed MFT flow looks like the following.

The screenshot displays the MFT web console interface for configuring a flow named "Orders2ProcurementTransfer". The interface is divided into several sections:

- Source:** Contains a configuration box for "OrdersFTPSource" with the following details:
  - Type: FTP Embedded
  - Location: /partner1
- Content Filters:** A section with a right-pointing arrow, currently empty.
- Payload Access:** A section with a right-pointing arrow, currently empty.
- Targets:** Contains a configuration box for "ProcurementFileTarget" with the following details:
  - Type: File
  - Location: /tmp/mft/ partner1
  - Pre-Processing Actions:**
    1. Decompress
    2. PGP Decryption
  - Post-Processing Actions:** (Section header, currently empty)

A large blue arrow points from the Source configuration to the Targets configuration, indicating the data flow direction.

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## High-Level Steps

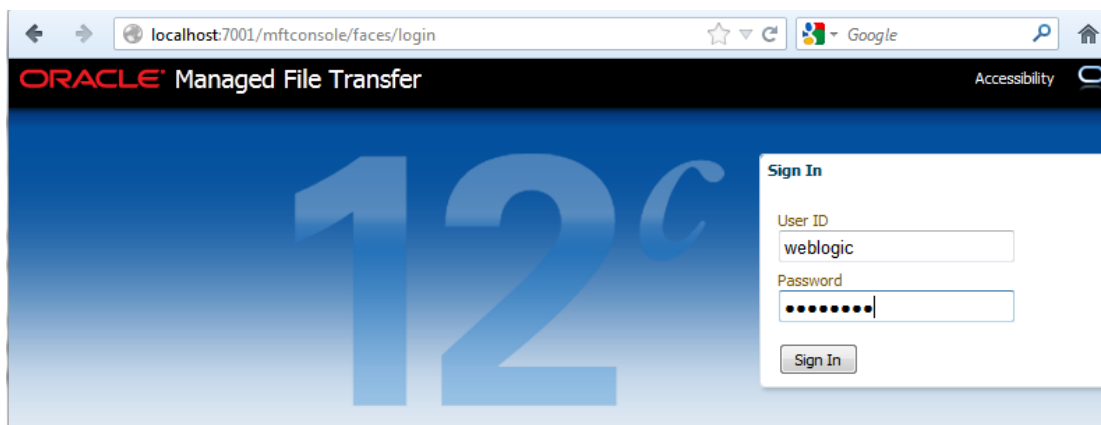
### Basic FTP to File with Compression

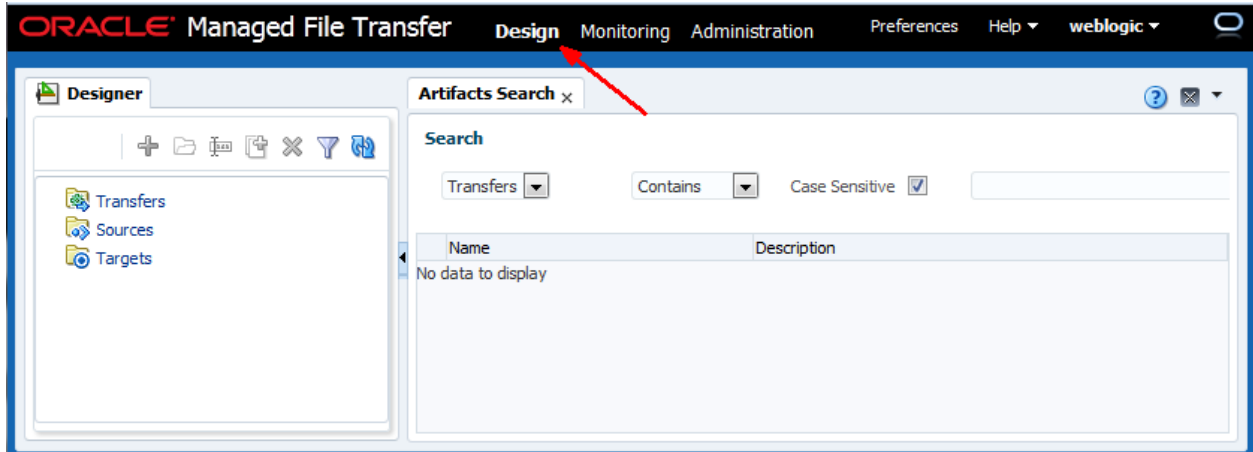
1. Go to MFT Designer
2. Create A Transfer
3. Add a Source and Target
4. Add a Source Content Filter and Target Pre-Processing Compress, Decrypt Actions
5. Save and Deploy
6. Create an FTP user in WLS console
7. Test and monitor

## Steps in Detail

### MFT Console: Login and go to “MFT Design” page

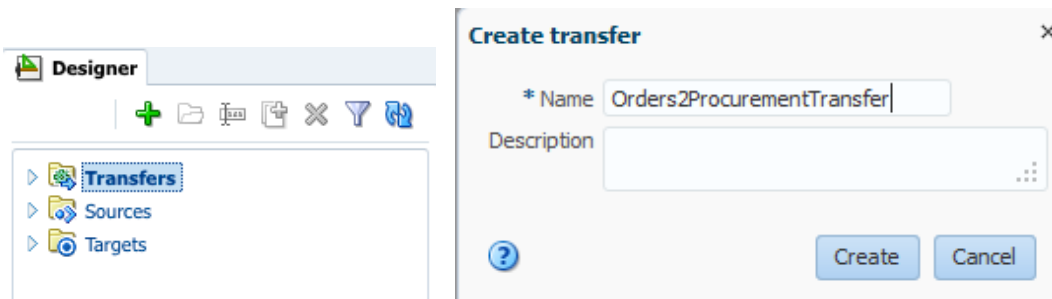
- Location URL: "http://HOSTNAME:PORT/mftconsole"
  - EX: http://localhost:7001/mftconsole
- User ID: <USERNAME FROM INSTALL>. Ex: weblogic
- Password: <PASSWORD FROM INSTALL CONFIG>. Ex: welcome1



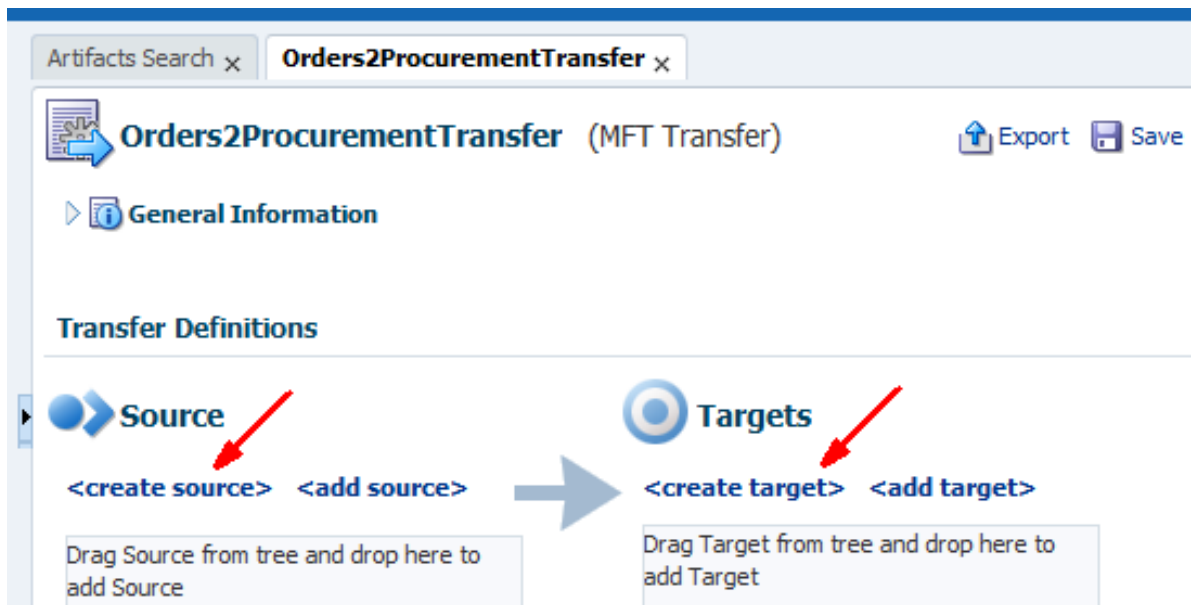


### Transfer: Create a new Transfer "Orders2ProcurementTransfer"

- In Design Navigation Tree, Click on Transfers
- Name: Orders2ProcurementTransfer



### Transfer: Click on <create source> to create a new Source



- Name: OrdersFTPSouce
- Type: FTP Embedded
- Folder: "/partner1"
  - *NOTE: The user home folder "/partner1" is automatically created when the FTP user "partner1" is created in the WSL console. This allows you to just click on the Browse button and select that pre-created folder from the FTP server. This step is skipped here for brevity but is covered later in the section labeled "Create the FTP User in the WLS Console"*
- Click Create

The screenshot shows a 'Create Source' dialog box with the following fields and controls:

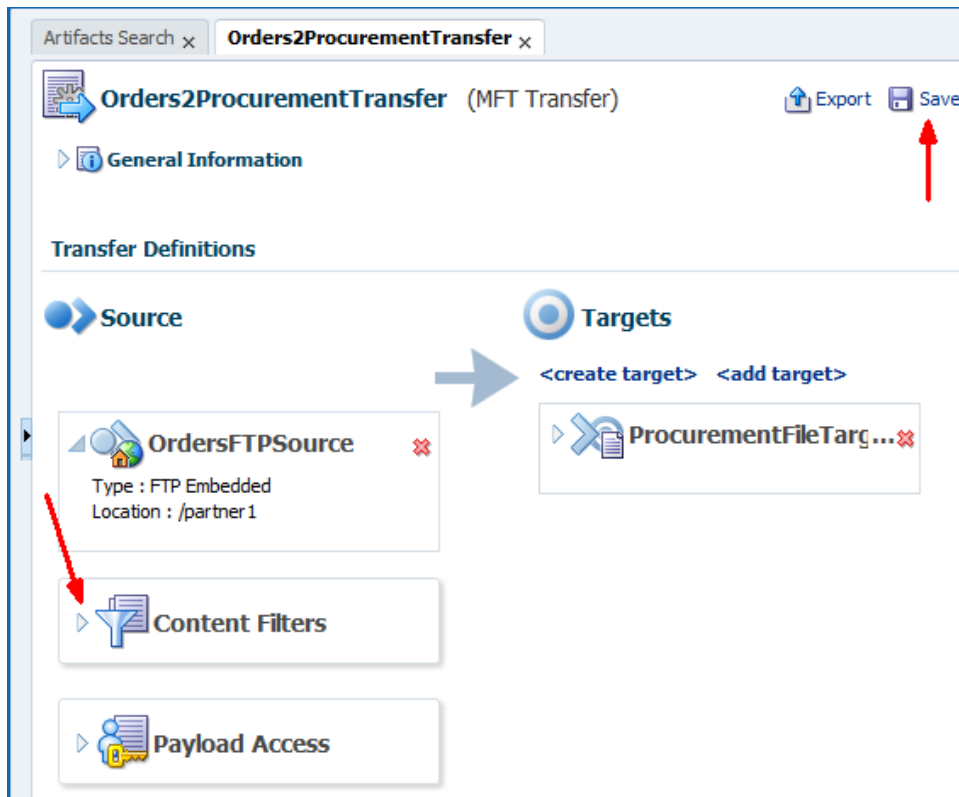
- Name:** OrdersFTPSouce
- Description:** (Empty text area)
- Type:** FTP Embedded (Dropdown menu)
- Folder:** /partner1 (Text input field with a 'Browse' button to its right)
- Buttons:** A help icon (?), 'Create', and 'Cancel' buttons are located at the bottom of the dialog.

**Transfer: Click on <create target> to create a new Target**

- Name: ProcurementFileTarget
- Type: File
- Folder:
  - Win: d:\tmp\mft\
  - Linux: /tmp/mft/
- Click Create

The screenshot shows a 'Create Target' dialog box with the following fields and controls:

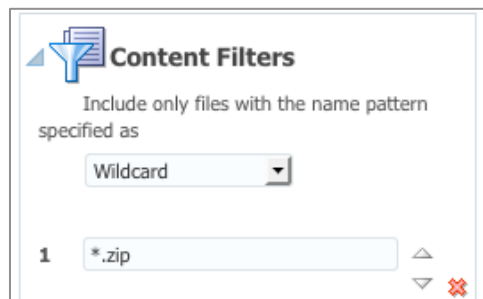
- Name:** ProcurementFileTarget
- Description:** (Empty text area)
- Type:** File (Dropdown menu)
- Folder:** /tmp/mft/ (Text input field)
- Buttons:** A help icon (?), 'Create', and 'Cancel' buttons are located at the bottom of the dialog.



- Click Save

## Transfer: Add a Source Content Filter by Expanding Content Filters

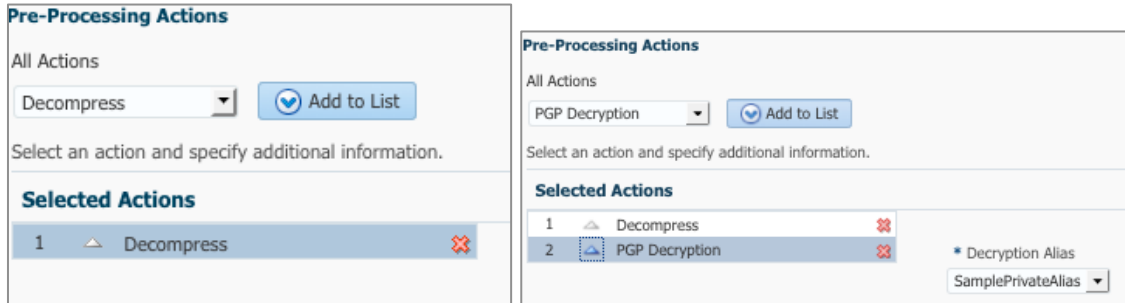
- Expand the Content Filters tree
- Enter pattern \*.zip
- Click Save
- Collapse XML tree



## Transfer: Add Target Pre-processing Actions Decompress and PGP Decryption

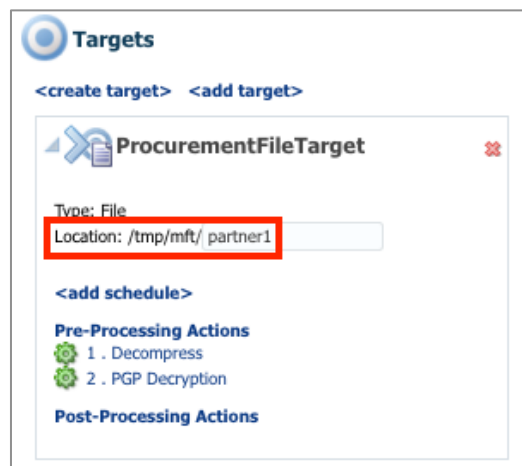
- Expand ProcurementFileTarget
- Click <add pre-processing actions>
- Select Decompress
- Click Add to List

- Select Action PGP Decryption
- Click Add to List
- Select Alias SamplePrivateAlias
- Click OK



## Transfer: Override the File Target Location

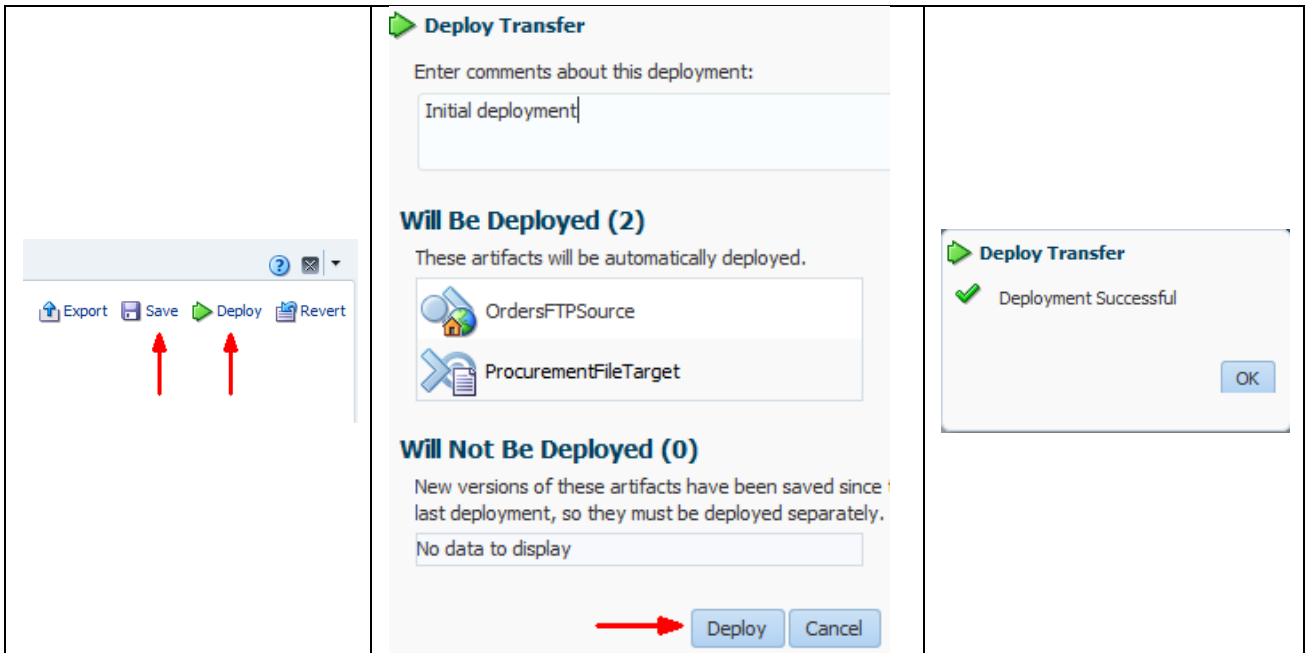
- Edit the “Location” field to append the folder “partner1” to the output location.



## Transfer: Save and Deploy

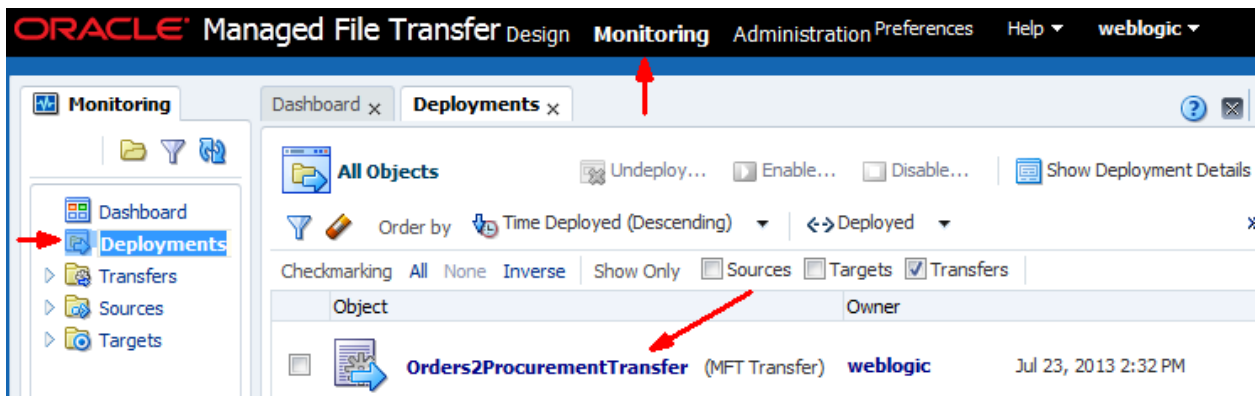
- Click Save
- Click Deploy
- Click Ok





## Verify Deployment

- Go to Monitoring->Deployments to verify your deployment

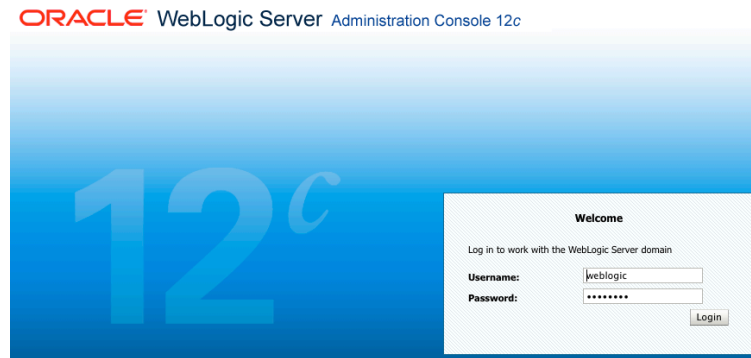


## Create the FTP User in the WLS Console

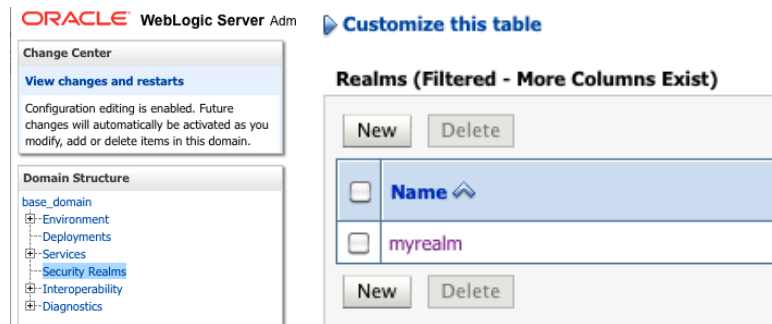
Oracle Managed File Transfer is fully integrated with the Oracle Fusion Middleware security layer. Users, Groups and Roles configured in the WebLogic console are used to secure the folders exposed in the MFT Embedded FTP and sFTP servers. WebLogic security policies can be configured for file system, database or LDAP for maximum flexibility. MFT FTP users do not require access or roles to the MFT Console so they would have no visibility into the MFT Design, Monitoring or Administration pages.

Login to the WebLogic console using the following instructions.

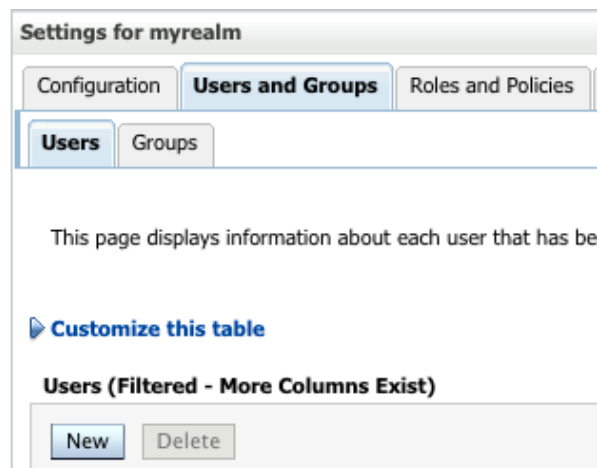
- Location URL: "http://HOSTNAME:PORT/console"
  - EX: http://localhost:7001/console
- User ID: <USERNAME FROM INSTALL>. Ex: weblogic
- Password: <PASSWORD FROM INSTALL CONFIG>. Ex: welcome1



- Click on "Security Realms" on the left column then click on "myrealm"



- Click on "Users and Groups" then "New"



- Enter the username "partner1" in the Name field then passwords and click OK

**Create a New User**

OK Cancel

**User Properties**

The following properties will be used to identify your new User.

\* Indicates required fields

What would you like to name your new User?

\* **Name:**

How would you like to describe the new User?

**Description:**

Please choose a provider for the user.

**Provider:**

The password is associated with the login name for the new User.

\* **Password:**

\* **Confirm Password:**

OK Cancel

- You are finished and the user has not roles for the MFT Console. If you wish you could optionally explore the console roles that are used by MFT shown in the table below. Note that MFT Administrators do not by default have access to all FTP folders.

**Settings for partner1**

General Passwords Attributes **Groups**

Save

Use this page to configure group membership for this user.

**Parent Groups:**

**Available:**

- AdminChannelUsers
- Administrators
- AppTesters
- CrossDomainConnectors
- Deployers
- Monitors
- Operators

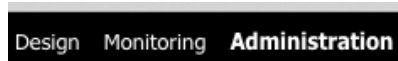
**Chosen:**

**Design Monitoring Administration**

Role Name	Function
Administrators	Full Console R/W
Deployers	Designer R/W + Monitor R/O
Monitors	Monitor R/W + Design R/O

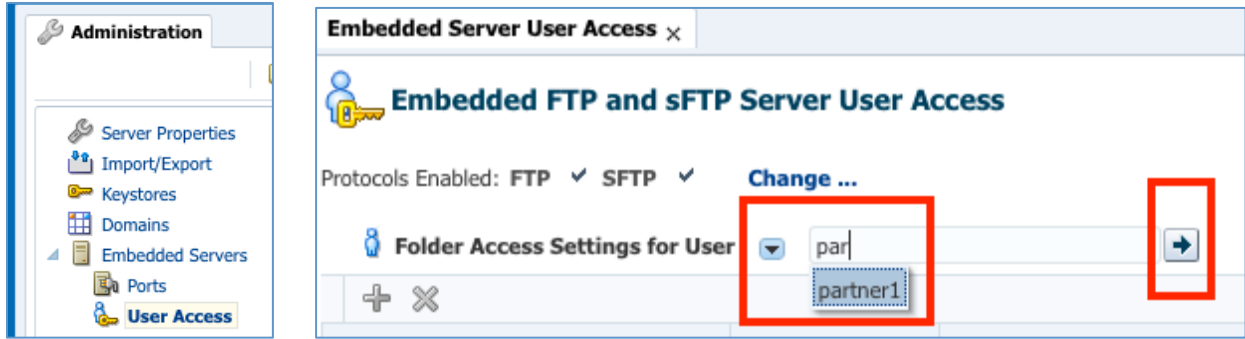
## Secure Users FTP Folder

Go to the MFT Console and Click the Administration link at the top

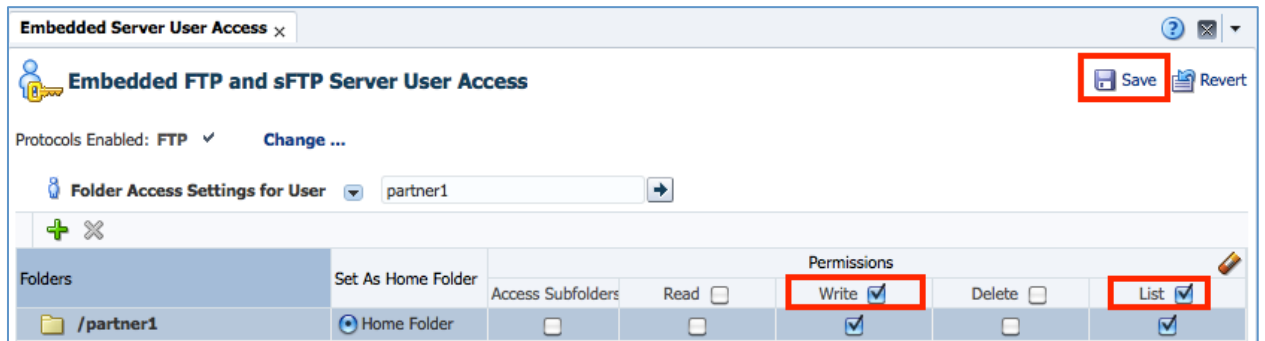


Expand "Embedded Servers" on the left side navigation tree and Click "User Access"

Enter the 1st 3 characters of the user "partner1" IE, "par", select the user "partner" then click the arrow icon on the right.

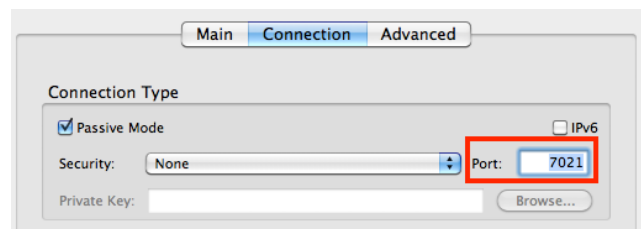
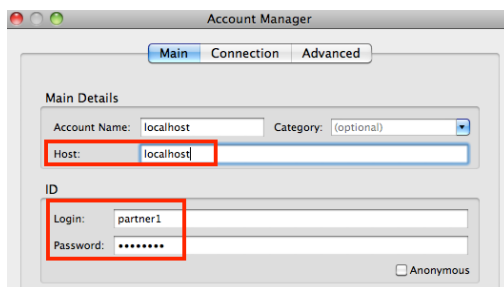


- Now check the Write and List buttons then Click Save as shown below.

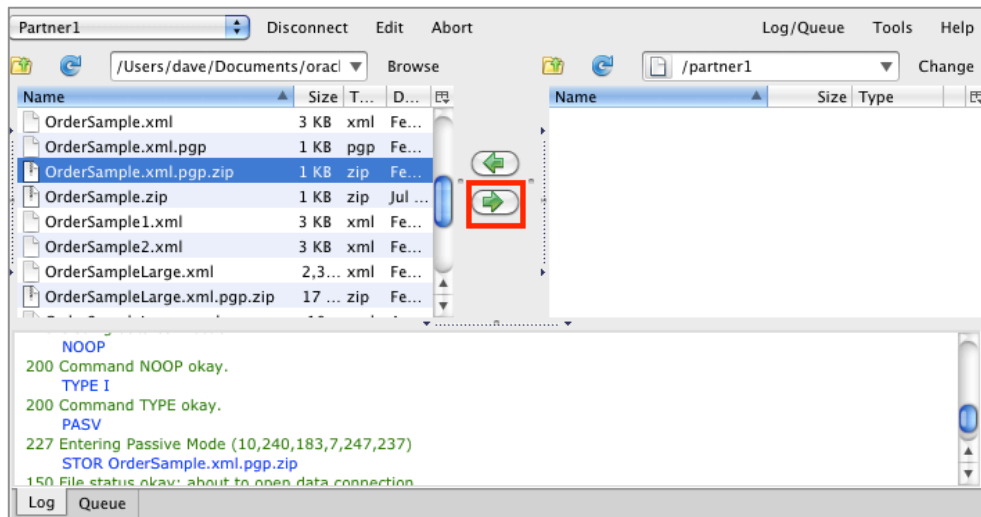


## Test Using Newly Created User

- Using an FTP client, connect to the MFT FTP server and upload OrderSample.xml.pgp.zip from the sample\_input folder to the MFT FTP server on port 7021 to the directory /partner1.
- Connect to the MFT FTP Server
  - Ex: server="localhost" user="partner1" password="welcome1" Port="7021"
- Notes
  - Use the "binary" command if your FTP client does not automatically. IE: "binary"
  - Using VBox with Windows loopback driver may require using IP address vs localhost
  - You may need to set Active mode ("passive off") for the following reasons:
    - Connecting to a VBox image with NAT translation or Windows loopback adapter
    - If using FTP Proxy server in DMZ
    - if initial connection works but uploads fail

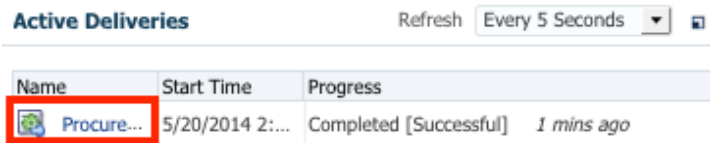


- Copy the "OrderSample.xml.pgp.zip" file to the "/partner1" folder by clicking the arrow or dragging the file to the open space on the right side. Notice the file disappears immediately because the MFT Embedded FTP servers are real-time event driven Sources that do not rely on polling.

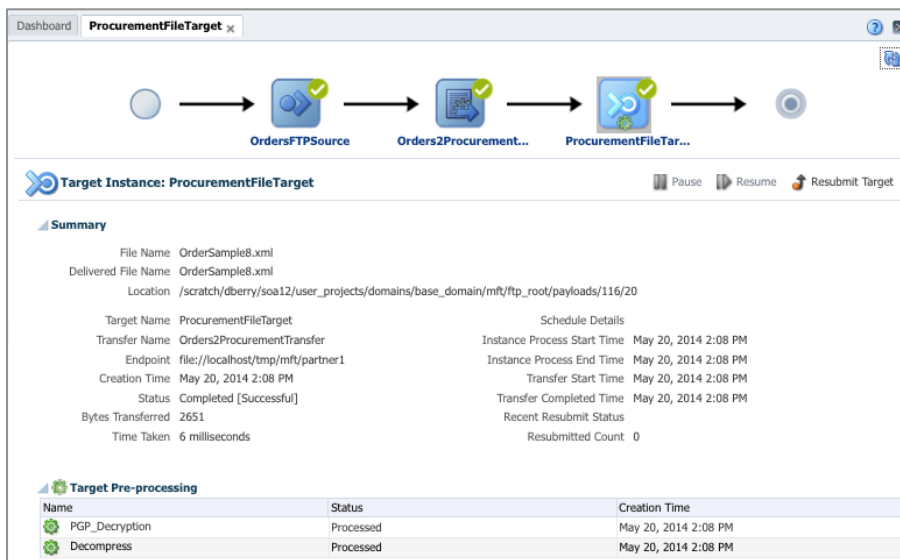


## Monitor and View the Instance Reports

- Go to Monitoring->Dashboard and find your transfer flow in the Active Deliveries region.



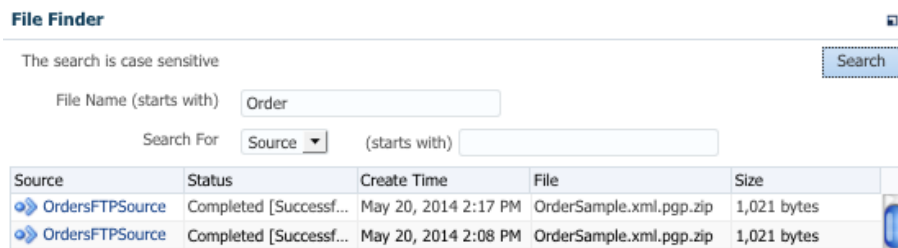
- Click the link for ProcurementFileTarget to view the instance report.



- Observe the report Summary details: File Name, Bytes Transferred, Time Taken etc...
- Observe the Target Pre-processing Actions PGP Decryption and Decompress
- Click the Source node OrdersFTPSource on the left of the flow diagram at the top
- Observe the Summary Data: File Name, Payload Size, Endpoint etc ...
- Observe the Transfer Instances for this Source
- Optionally try the following and observe:
  - Click the “Resubmit Target” button to see what happens.
  - Click on the Transfer flow diagram and click “Resubmit Transfer” to see what happens.
  - Refresh the page and explore the Resubmitted Instances section/links.
  - Using the FTP Client, copy another File and observe the Dashboard again.

### Go back to the Dashboard File Finder and Search for the following

- File Name: (starts with): “Order”
- Source: (starts with): “Order”
- Click “Search “

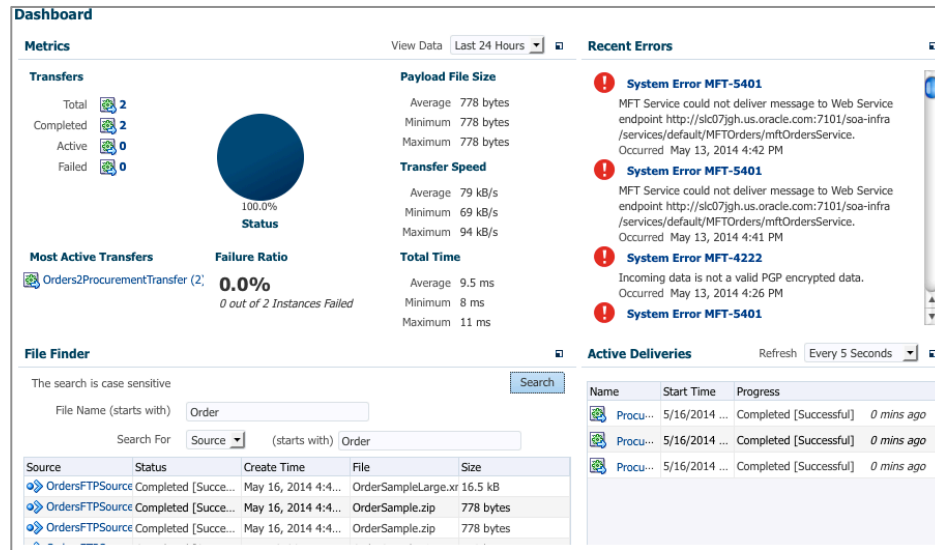


Clicking on either of these links take you to Source node of the flow diagram that you saw previously. Try it.

## Dashboard Details and Metrics Reports

### Dashboard Components

You have seen and interacted with 2 components of the dashboard so this section will discuss the other sections of the dashboard and the expanded views. All regions have an expanded view, which provides more data and filters by clicking the small square icon in the upper right corner of the region. The MFT Monitoring default Dashboards has the 4 regions listed below.



## Metrics

Show metrics for Transfers (not Sources or Targets). All metrics regions show the same information

- Total, Completed, Active and Failed counts that are clickable
- Most Active Transfers that is clickable and a Failure Ratio
- Status Chart that is Clickable
- Payload File Size, Speed and Total (elapsed) time: Ave, Min and Max
- Drop down to change the reporting period

## Recent Errors

Shows recent Errors that are clickable to resolve them. These errors are just alerts that are static in nature. Resolving the underlying issue does not make them go away or change their view. They can only be purged by running WLST instance purge scripts.

## File Finder

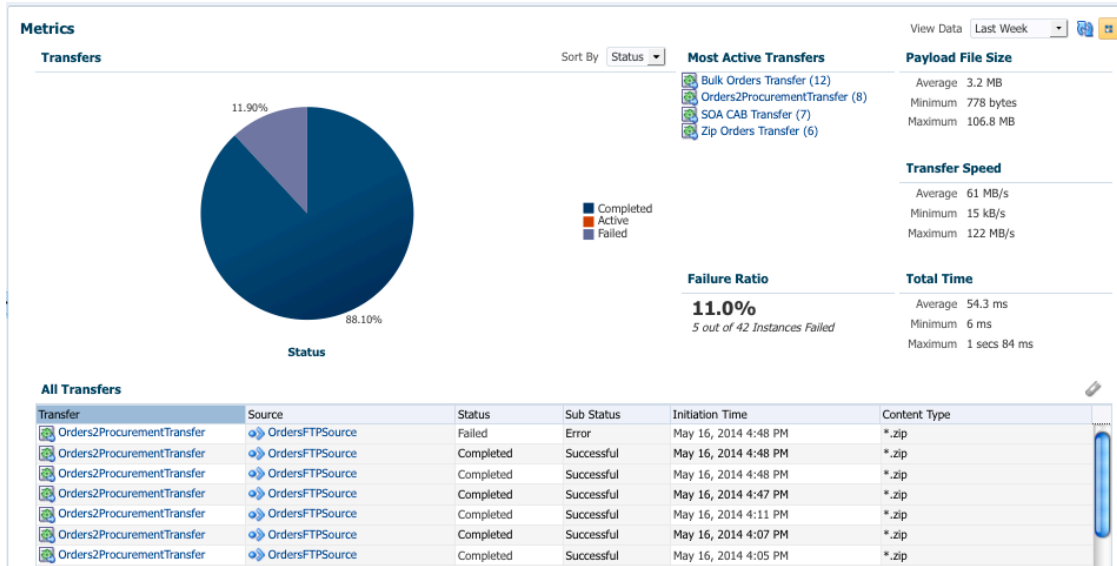
The file finder allows you to search on the Filename and either the Source or Target name. It does not auto refresh and the links take you to individual instance reports.

## Active Deliveries

This shows updates for files as they are delivered to Targets. The links take you to the individual instance reports. It uses very lightweight infrastructure on the back end to minimize performance impact of the near real-time update. The default refresh interval is configured or disabled on the Administration Server Setting page.

## Expanded Views

The **Metrics** expanded view allows you to sort by status and lists all transfer in the reporting interval. Click the small square in the top right corner to return to the main dashboard.



The **Recent Errors** expanded view allows additional filtering on Dates, Error Type, Error Code, Level and Category. It also uses pagination to page through all of the errors in the system.

**Recent Errors**

Filter: Starts With   Case Sensitive

Error	Description	Error Instance Type	Code	Level	Category	Create Time	
1	Multiple file ...	MFTException [thr...	Instance	MFT-4215	Low	Message Error	May 16, 2014 4:48 PM
2	MFT Service ...	MFTException [thr...	Target	MFT-5401	Critical	System Error	May 13, 2014 4:42 PM
3	MFT Service ...	MFTException [thr...	Retry	MFT-5401	Critical	System Error	May 13, 2014 4:41 PM
4	Incoming da ...	MFTException [thr...	Instance	MFT-4222	Low	System Error	May 13, 2014 4:26 PM
5	MFT Service ...	MFTException [thr...	Target	MFT-5401	Critical	System Error	May 13, 2014 4:23 PM
6	MFT Service ...	MFTException [thr...	Retry	MFT-5401	Critical	System Error	May 13, 2014 4:23 PM
7	MFT Service ...	MFTException [thr...	Target	MFT-5401	Critical	System Error	May 13, 2014 4:17 PM
8	MFT Service ...	MFTException [thr...	Target	MFT-5401	Critical	System Error	May 13, 2014 4:16 PM

1 - 40 of 46 Page Size 40 Last Updated May 16, 2014 5:28 PM

The **File Finder** expanded view allows additional filtering on Dates, status, Type, Size and Sender or user who uploaded the file. It also supports pagination at the bottom of the page.



Dashboard | Deployments x | ProcurementFileTarget x | OrdersFTPSource x | OrdersFTPSource x

**File Finder**

Search For: Source | Starts With: |  Status | Active | Search | Reset

Source	Type	Create Time	File	Size	Sender
1 OrdersFTPSource	External	May 16, 2014 4:48 PM	MFTDocs.zip	3.9 MB	partner1
2 OrdersFTPSource	External	May 16, 2014 4:48 PM	OrderSampleLarge.xml.pgp.zip	16.5 KB	partner1
3 OrdersFTPSource	External	May 16, 2014 4:48 PM	OrderSample.zip	778 bytes	partner1
4 OrdersFTPSource	External	May 16, 2014 4:47 PM	OrderSample.zip	778 bytes	partner1
5 OrdersFTPSource	Source Resubmit	May 16, 2014 4:11 PM	OrderSample.zip	778 bytes	weblogic
6 OrdersFTPSource	External	May 16, 2014 4:07 PM	OrderSample.zip	778 bytes	partner1
7 OrdersFTPSource	External	May 16, 2014 4:05 PM	OrderSample.zip	778 bytes	partner1
8 OrdersFTPSource	External	May 16, 2014 3:55 PM	OrderSample.zip	778 bytes	partner1
9 Bulk Orders FTP Sour	External	May 14, 2014 3:28 PM	OrderSampleLarge.xml.pgp.zip	16.5 KB	bulkorders
10 Bulk Orders FTP Sour	External	May 14, 2014 3:06 PM	OrderSampleLarge.xml.pgp.zip	16.5 KB	bulkorders

1 - 40 of 247 | Page Size: 40 | Last Updated: May 16, 2014 5:34 PM

The **Active Deliveries** expanded view provides a single page for visualizing all file status's as they are delivered to their respective endpoint targets. There are not any additional filters from the normal view.

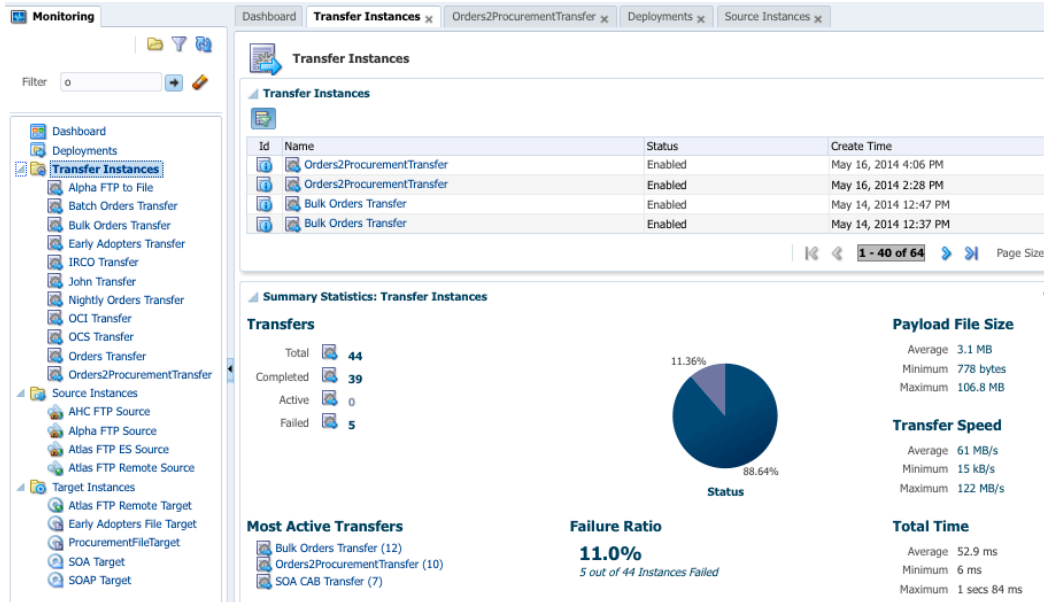
Dashboard | Deployments x | ProcurementFileTarget x | OrdersFTPSource x | OrdersFTPSource x

**Active Deliveries** Refresh: Every 5 Seconds

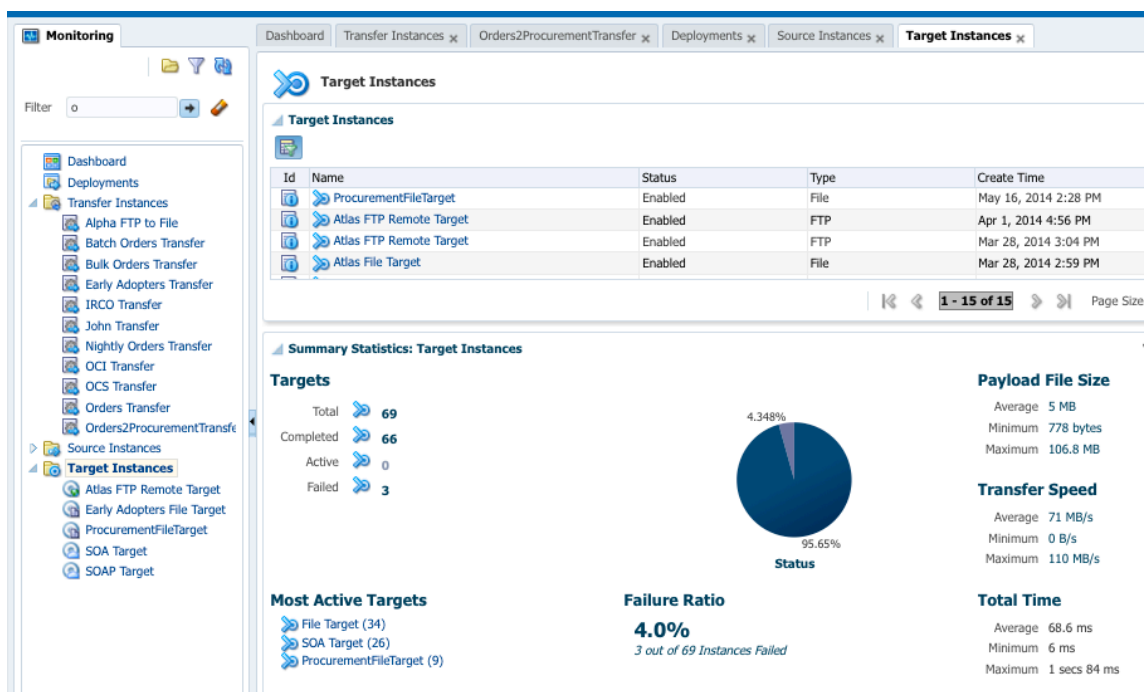
Name	Start Time	Progress
Procurement...	5/16/2014 5:36 PM	Completed [Successful] 0 mins ago
Procurement...	5/16/2014 5:36 PM	Completed [Successful] 0 mins ago

## Fine Grained Metrics Reports

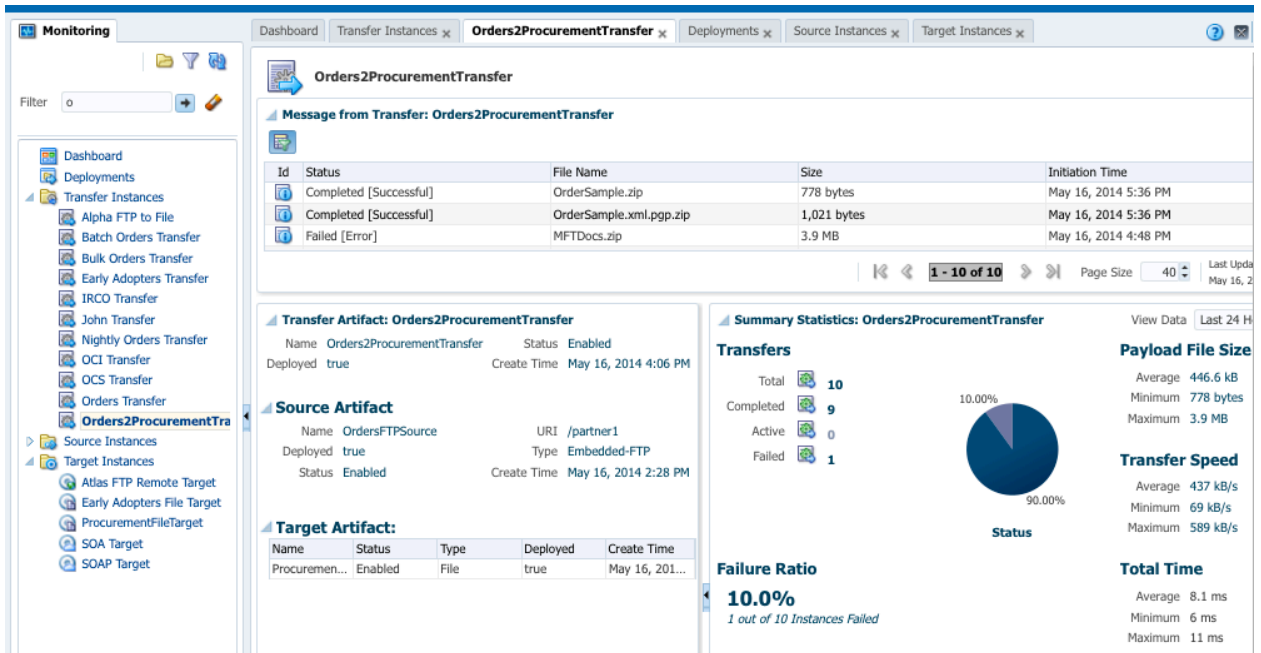
We have already seen the course grained system level Metrics region on the main dashboard. In addition, the links on the left side of the Monitoring Navigation tree are all clickable. If you click on **Transfer Instances** as shown below, you will see a report that looks very much like the Transfer metrics report on the main dashboard except it lists the instances.



If you click on either **Source Instances** or **Target Instances**, you will see a Metrics report for all Sources or Targets in the system. These reports are very handy for seeing who are the most active Sources or Targets in your system over the selected interval.

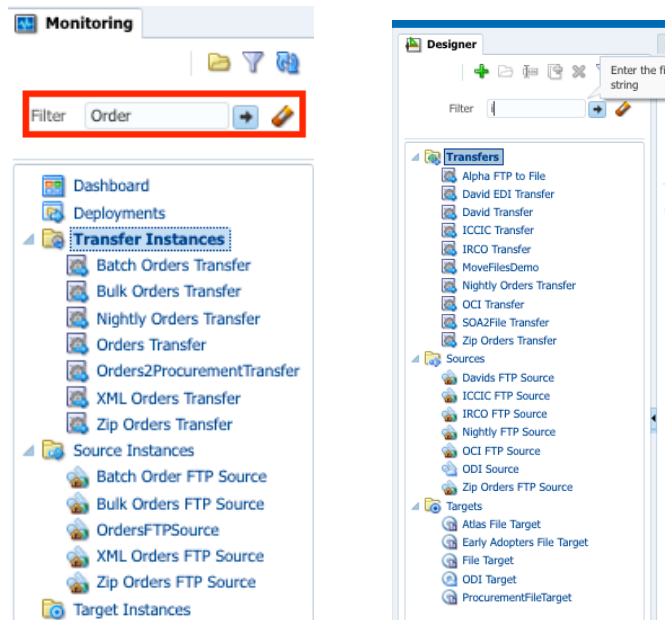


Additionally, if you want to view even more fine grained metrics reports, you can click on any of the child nodes in the tree to view an individual artifact report for any Transfer, Source or Target. You will notice below there is also dependency information shown for each artifact.

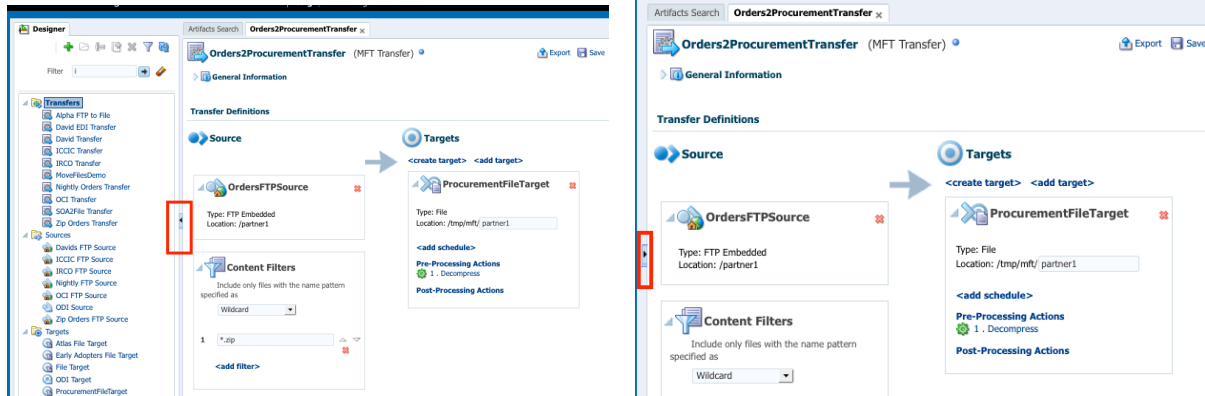


## Filtering

The navigation trees also support filtering in both the Design or Monitoring pages. This is useful and required when there are a very large number of artifacts in your system. The screenshots below illustrate its use.



While we are investigating the navigation tree, it is important to note that sometime you just want it to go away. An example might be when you are working on a Transfer in the Designer and you need more space. By clicking the envelope expander highlighted below, you can hide it. Clicking the expander again brings it.



That is the end of this overview of the Oracle Managed File Transfer product. Additional topics such as SOA integration, processing large files and PGP security will be covered in separate papers.

## Appendixes

### Install Overview

Below is an overview of the installation and configuration process. It assumes you have set an environment variable \$MW\_HOME pointing to your Oracle home. You should use the detailed instructions from the draft of the Managed File Transfer Install Guide. Although Oracle MFT works with Oracle XE database in a development environment, these instructions are for enterprise/"production" installations and assume access to an instance of Oracle EE Database.

### Install Pre-Requisites

One of the following Oracle Database (separately downloaded and installed)

- 11gR2 Standard or Enterprise Edition
- 12cR1 Standard or Enterprise Edition
- 11g R2 Express Edition for Development or Testing use only
  - <http://www.oracle.com/technetwork/database/database-technologies/express-edition/downloads>

JDK 1.7

- <http://www.oracle.com/technetwork/java/javase/downloads/jdk7-downloads-1880260.html>

WebLogic 12.1.3: Download from Oracle MFT OTN page

- <http://www.oracle.com/technetwork/middleware/mft/downloads>

Oracle MFT 12.3: Download from Oracle MFT OTN page

- <http://www.oracle.com/technetwork/middleware/mft/downloads>

An FTP Client (separately downloaded and installed)

- Linux command Line FTP Client
- FireFTP for Firefox Browser: <http://fireftp.net/>

- 
- FileZilla [https://filezilla-project.org/download.php?show\\_all=1](https://filezilla-project.org/download.php?show_all=1)

## Installation Steps

This is a high level overview of the full WebLogic Infrastructure and Oracle MFT install process. If you are new to the Oracle Middleware Installation and Configuration process, it is suggested you visit the MFT OTN Documentation page below and follow the WebLogic Infrastructure and Oracle MFT installation documents.

- <http://www.oracle.com/technetwork/middleware/mft/documentation>

### High Level Steps

1. Run Installer Jar Files
  - a. WLS: "java -jar fmw\_12.1.3.0.0\_infrastructure.jar " supports gui or -silent parameter
  - b. MFT: "java -jar fmw\_12.1.3.0.0\_mft.jar " supports gui or -silent parameter
2. Run Repository Creation Utility (RCU)
  - a. \$MW\_HOME/oracle\_common/bin/rcu Select Oracle Managed File Transfer 12.1.3 [mft]
3. Run WebLogic Configuration Utility to Deploy MFT
  - a. Create expanded Domain for production environment: Admin server, mft-cluster, mft\_server1
  - b. Optionally you can create a single compact domain so MFT is deployed into the Admin server  
setenv CONFIG\_JVM\_ARGS -Dcom.oracle.cie.config.showProfile=true
  - c. \$MW\_HOME/oracle\_common/common/bin/config.sh
4. Start Servers
  - a. Admin Server  
\$MW\_HOME/user\_projects/domains/<DOMAN\_NAME>/bin/startWebLogic.sh
  - b. Managed Server  
\$MW\_HOME/user\_projects/domains/<DOMAIN\_NAME>/bin/startManagedWebLogic.sh mft\_server1 <PORT>  
IE: 7901

## Post Install Configuration

### Configure PGP

Note: you must first download the MFT-Samples.zip on the Oracle MFT OTN "Learn More" page

- <http://www.oracle.com/technetwork/middleware/mft/learnmore>

*NOTE: Sample "non-strong" RSA keys are provided as part of the samples. You should generate your own keys using the Linux command ssh-keygen and import them for use in your production environment.*

1. Set Default and PGP Keystore Passwords

*Before running the importCSFKey.py WLST command, you must log in to the MFT Console as Administrator/"weblogic" and set the Default and PGP Keystore passwords and click Save. The installer creates a default keystore using the same admin password you provided during WLS config. You can optionally create your own keystore or change the password to the default demo keystores in the EM*

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*server console. The below passwords must be the same as your administrator password for the user "weblogic".*

2. MFT Console->Administration

Administration -> Keystores -> Default Keystore -> Keystore Password' Example: "welcome1"

Administration -> Keystores -> Default Keystore -> Private Key Password' Example: "welcome1"

Administration -> Keystores -> PGP Keystore -> PGP Private Key Password' Example: "welcome1"

3. Import PGP Keys

4. cd to pgp dir. cd mft-samples/pgp

5. edit importCSFKey.py to put in the correct WLS connection info

6. IE: connect("weblogic", "welcome1", "t3://localhost:7901")

7. You can also modify this script to import your own keys.

8. run WLST: "\$MW\_HOME/mft/common/bin/wlst.sh importCSFKey.py"

9. You can now use the PGP Encrypt and Decrypt Actions on your Sources or Transfers

## Testing

Some sample files are provided in the sample\_input folder inside the MFT-samples.zip file. You will need an FTP client to test scenarios using the MFT embedded FTP server. FireFTP or FileZilla FTP clients work fine Windows, Linux and other environments. Follow the instructions in the tutorial files listed above.