Metrology Xplorer Series Application Note

Viewing External (PDF's, Excel) documents from Metrology Xplorer® (Version 1 and 2)

Wouldn't it be nice to display formatted Cal Certs or Test Procedures in your browser.... ?

Metrology Xplorer (Versions 1 and 2) have the capability to bring your calibration data to the far corners of your facility. By following the instructions in this application note, you will have the ability to distribute documents (calibration certs, calibration procedures, repair documents, and more…) in PDF or other formats as easily as you supply calibration data! This document assumes that the administrator has an understanding of Metrology Xplorer and how to create and add reports.

Modern browsers such as Internet Explorer and Mozilla Firefox have the ability built-in, or available as a "plug-in", the capability to display documents formatted in the Adobe PDF (portable document format) standard. This widely used standard is desirable for its portability among operating systems, just as Metrology Xplorer has the ability to work among various browsers running on different operating systems. By configuring your MET/CAL database to accept PDF filenames, and creating reports in Metrology Xplorer, you will gain the capability of allowing your clients to view these PDF formatted documents (or other documents) on their workstations.

The first step is to choose a field in the calibration form (or whatever MET/CAL form the PDF documents are associated with) to accept the PDF document file name. Make sure that the data length and display length are suitable for the filename lengths you are expecting to use. Unsuppress this field and give it a title suitable for the purpose of the field (such as "Cert File Name").

Setting up Metrology Xplorer 1 (METEX1)

The next step is to create a directory in the "HTML" directory on your MET/BASE server (or wherever the Metrology Xplorer 1 index page resides). For example, if you are running the Apache web server software, this directory is typically "c:\Program Files\Apache Group\Apache2\htdocs". If you are using the Internet Information Server (IIS) it is probably "c:\Inetpub\wwwroot". Depending on the system that you use, create a new directory to hold the incoming PDF documents. A good name for this directory might be "PDF". Remember the name and location of the new directory. This new directory will be referred to in this application note as "the PDF directory".

In our example at right, we have created a new sub-directory called PDF under the "htdocs" directory used by the apache web server. We have shared the PDF sub-directory thereby allowing the calibration lab to have a method to store the calibration certificate files.

NOTE: Sharing directories within a web server file structure can be considered a security violation. However, your IT administrator may allow you to access this directory via other methods. This application note only describes this method as an example.

This example at right is applicable to METEX1 only because it uses an external web server.

We have created a PDF directory for storing Cal Certs.
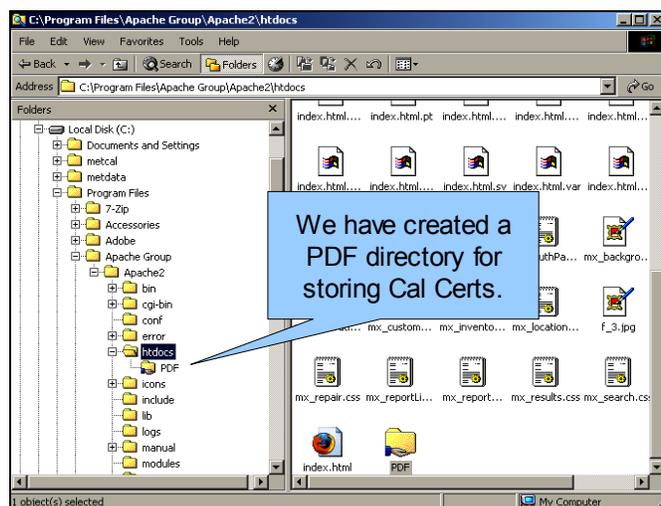
At this point it would be wise to copy a sample (or real!) PDF document to this directory as a test. This will let you know later that everything has been configured properly. Pick a sample test instrument in your MET/CAL database, and enter the name of the test PDF document in the field that you recently unsuppressed for this purpose. For the purpose of discussion in this document, the assumption is being made that you have unsuppressed a field in the calibration form (Browser and Entry forms) and you are storing calibration certificates in the PDF directory. Do not enter the drive or path of the document in the database field.

Before the instructions for creating a report are given, its best to describe the process for creating a link to the PDF document.

A "link" to a document in a typical web page takes the following form:

<A HREF="http://your.server.name/pdf/filename.pdf"> View Cert </A>

This HTML statement will show a link in your browser named "View Cert". When you click on this link, the document named "filename.pdf" located on the server named "your.server.name" will be displayed.

The goal of writing the report is to have the report return the text displayed above in the body of the report. When the browser encounters this text, then a link called View Cert will be displayed, and when the user clicks on that link, the "filename.pdf" document will be displayed. Of course, you need to specify the real name of your server, the correct PDF directory, and the correct filename.

You should recall that the document name is stored in the database in the field that you recently unsuppressed. This document name should be part of the link instead of the "filename.pdf" portion of the link.

For our example, we have designated field c2354 as the field for the data sheet filename. We have a calibration that was performed by the "acme calibration" lab. They provided a PDF file and it is listed at right. The screen shot at right is from Metrology Xplorer 2.

The certificate filename.

NOTE: You should initialize this field to a null condition first before using it to display certificate file names. We used the command:

Update mt.calibration set c2354 = null;commit;

Using the example of a calibration field containing the document name, and a PDF directory of "PDF", and a MET/BASE server name of METBASE, then follow the steps listed to create an SQL report in METEX1 that will display the PDF file when the user clicks on the link. Create an SQL report that returns all calibration records belonging to a specified asset number. Use the prompting mechanism for specifying a specific asset to the SQL statement. Such an SQL statement could be:

- *select i4201, i4202, i4203, i4204, dateformat(c2301, 'MM/DD/YYYY') 'c2301' ,*

  dateformat(c2303, 'MM/DD/YYYY') 'c2303',

  (select '<A HREF="http://<servername>/pdf/' + <pdf field> + '">View Cert</A>' where <pdf field> is not null) 'Cert_Link'

  from mt.inventory, mt.calibration

  where mt.inventory.mtag=mt.calibration.mtag

  and i4201 like '$asset$'

Replace "<pdf field>" with the field name that you unsuppressed and are using to store the PDF filename. Make sure to configure prompting to use the "$asset$" variable and assign the report to your "MT" group, and select "link to forms on key data fields" in the METEX1 admin program. Go ahead and run the report in your browser as normal. Select your test asset that contains the practice PDF filename listed. You should see a list of calibrations performed, with links to the calibration form for each, and one of the calibration records should display the practice PDF filename that you entered in MET/CAL.

The following is an example that will display Inventory and Calibration fields and will also drill down to the individual screens. The tag name $asset$ is used to display on a single asset. However, the example uses the "LIKE" command so the operator can enter a "%" which is the SQL wildcard at the prompt, and all the assets will be displayed. The example below only displays the current calibration record. You can remove the "C2339=1" if you want to display all the calibration records, or you can substitute some other logic.

The SQL Code for a METEX1 report might look as follows:

// select the fields in the report

select i4201, i4202, i4203, i4204, dateformat(c2301, 'MM/DD/YYYY') 'c2301' ,

// format the dates

dateformat(c2303, 'MM/DD/YYYY') 'c2303',

// include the ctag and inventory mtag for "link to fields" using METEX1 special function.

ctag,mt.inventory.mtag,

// Set up the cert link and only show links with data using string concatenation, Put in your server name.

(select '<A HREF="http://<your server name>/pdf/' + c2354 + '">View Cert</A>' where c2354 is not null) 'Cert_Link'

// select the tables

from mt.inventory, mt.calibration

// link the table mtags to allow the METEX1 drill down function

where mt.inventory.mtag=mt.calibration.mtag and c2339=1

// link to the asset number, comment out this last statement and all the records will display

and i4201 like '$asset$'

The code listed above can used as an example. We have named the report "External Certificate". The screen shot at right is from the METEX1 admin program. We have also created a prompt for the asset number. The "Link to Key Data Fields" will display a link to the inventory and calibration screens.

NOTE: It is very important to position the single quotes and double quotes in the right positions. Remember that this example utilizes SQL statements with concatenation. Look carefully at the example above.

When configuring a report in METEX1, be sure to save the report and enable the report to be available to users and groups. This application note assumes that the administrator is familiar with METEX1.
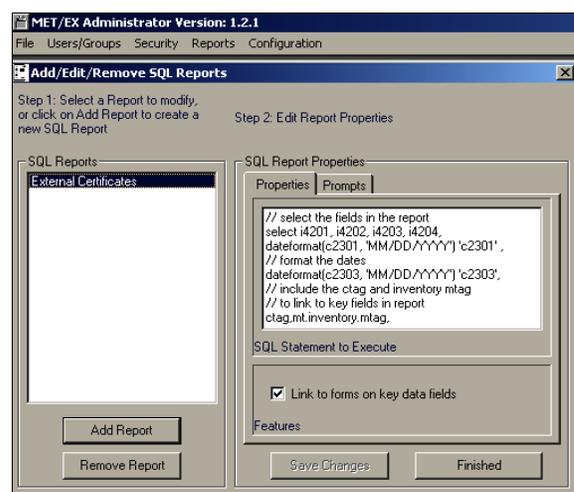
One More Comment about the Quotes and how it works.......

You should now see where this is all going…. Basically the text that forms a link that the browser can understand is being built using data from the database. There is a single quote before the '<A and a double quote after the HREF=. For example, look at the beginning of this statement again:

'<A HREF="http://<your server name>/pdf/' + c2354 + '">View Cert</A>' where c2354 is not null) 'Cert_Link'

Add a single quote **after** the PDF directory and forward slash, a single quote after the second plus sign immediately followed by a double quote, and a single quote after the </A>. This is critical to making the link work properly. Now let's look at the complete statement:

(select '<A HREF="http://<your server name>/pdf/' + c2354 + '">View Cert</A>' where c2354 is not null) 'Cert_Link'

We have created a select statement with the concatenated SQL link to only display CERT_LINK if the field is not null. This idea is to avoid displaying links if there is no filename for that calibration event. It is very important to initialize the database field that you want to use before actually entering file names. This was described earlier in this document. If you wanted to display an Excel sheet, then the workstation must "associate" Excel with the file type. We created a link using the popular Open Office application and it works great!

When we run the report from METEX1 the result is displayed at right. Notice that the asset (PTN Number) and Cal Date have a link. This is created from the "Link to Key Data Fields" that was described earlier. If you click on the asset number or Cal-date fields, the screen for those records is displayed. The Cert_Link is displayed also. When you click on "View Cert", the file is displayed. Remember that you must have the proper browser plug-ins for this example to work.

Clicking the PTN Number and cal date displays:
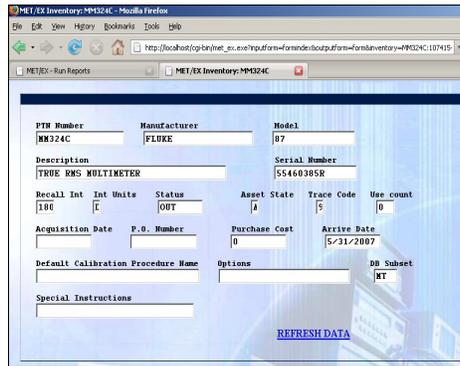
Clicking View Cert displays:
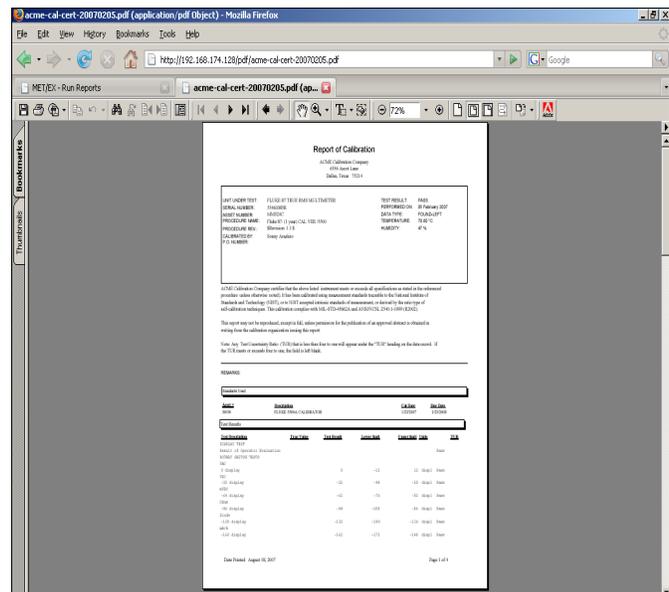
Setting up Metrology Xplorer 2 (METEX2)

Creating the report in METEX2 is very similar to METEX1. However, METEX2 does not use a web server like Apache. The METDaemon has all the necessary web services. In our example we will create a directory for the pdf files. Since the METDaemon will be used to display these files, we need to create a subdirectory under the METDaemon. Our directory is:

C:\Program Files\On Time Support\METDaemon 1.0\apps\pdf

We have created a new SQL report. The only difference between the report we used in METEX1 and this report for METEX2 is the addition of field aliases and the different link address. METEX1 does not need field aliases in the SQL report because METEX1 automatically substitutes the field numbers with the default aliases.

The following is our SQL example:

// select the fields in the report

select i4201 'Asset', i4202 'Mfg', i4203 'Model', i4204 'Description',

dateformat(c2301, 'MM/DD/YYYY') 'Cal Date' ,

// format the dates

dateformat(c2303, 'MM/DD/YYYY') 'Due Date',

// Set up the cert link

// Only show links with data

(select '<A HREF="http://<server name>/webapps/pdf/' + c2354 + '">View Cert</A>' where c2354 is not null) 'Cert_Link'

// select the tables

from mt.inventory, mt.calibration

// link the table mtags

where mt.inventory.mtag=mt.calibration.mtag and c2339=1

// link to the asset number

//and i4201 like '$asset$'

In this example, the URL looks like:

http://<server_address>/webapps/pdf/<pdf_document_name>

You will also notice that there is not a subdirectory called webapps in the file directory. METEX2 allows for an apps alias name. The default is webapps. IIS has a similar functionality. It is assumed that the administrator has familiarity with creating reports in the METDaemon. Our example report is displayed on the next page.

NOTE: URL's are case sensitive. If you create a subdirectory name like 'PDF' and the url has 'pdf' in the link, then the link will not work. Be sure to use the same case for the directory and the url.
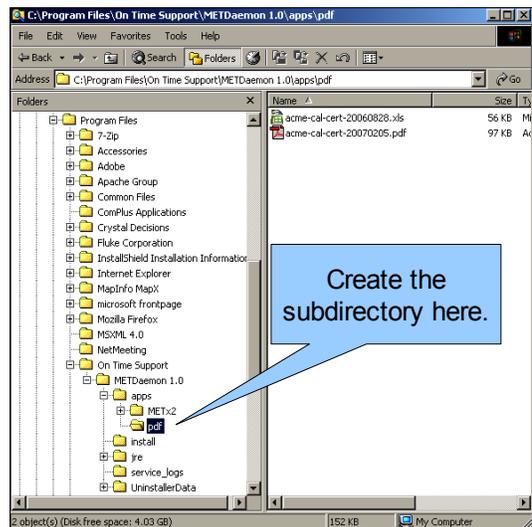
From the METEX2 report list we selected Cal Certs. When we run the report, it creates a list very similar to the METEX1 output.
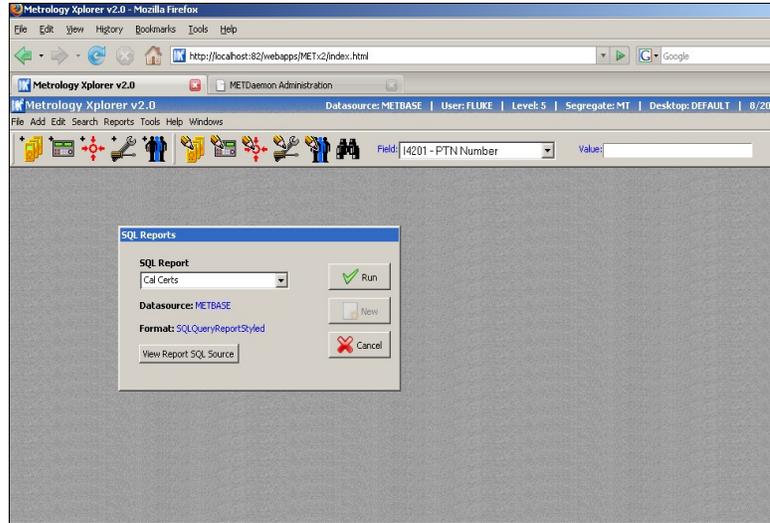
When the View Cert link is selected, the PDF report is displayed.

At this point, you need to decide how to get documents into your PDF directory. You may share this directory, or make it available for FTP uploads. Specifically going through the steps involved in sharing directories and FTP access with security considerations is beyond the scope of this application note. If you are unsure how to handle this situation, it is best to discuss this with your Information Services group or the MET/BASE administrator.

Now, when you receive (or create!) a PDF formatted document (or other document type), simply copy or move it into the PDF directory, and enter its filename into the database in the field you unsuppressed for this purpose. Your clients can then run a summary report like the example given previously and view this PDF document.

If you need on-site help, give us a call at ON TIME SUPPORT. We have a large amount of database, procedure, and networking experience and we can save you a lot of time. We are here to help. You can call us at (281) 296-6066 or visit us on the Internet at www.ontimesupport.com.

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