

AVT Installation

From AVTWiki

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1 Purpose

The Installation Guide describes the steps needed to setup AVT. It assumes familiarity with installation procedures and operating system settings on Windows.

2 Requirements

- Graphics card supporting OpenGL 2.0 with hardware shaders
- Minimum 1280x1024 pixel display
- 256MB graphics memory required (512MB preferred)
- Windows XP with Service Pack 2 (Other version of Windows may work; they are being tested by Beta users).
- Any Java Runtime Environment (jre) (for executing the AVT installer).
- vcredist_x86.exe, version 8.0.50727.4053, available via Microsoft Security Bulletin MS09-035
<http://www.microsoft.com/technet/security/bulletin/MS09-035.msp>
- DB2 Express C 9.7 from <http://www-01.ibm.com/software/data/db2/express/> . (version 9.5 or later may work).
 - Choose 64bit for 64bit machine and operating system.
- Certain 3rd-party, open source jar files, listed in the next section.*
- Latest AVT installation package, currently consisting of
 - **avt-installer-NNN.jar** file, and
 - sample data such as **CDRH-small.zip** and, optionally, **CDRH-large.zip**
- (if needed) Dependency Walker, from <http://www.dependencywalker.com/> (for debugging installation problems)

3 Third party software installation and configuration

The following installation and configuration steps are required before installing AVT.

- Change the Windows theme to Classic (Right click on the desktop, Select **Properties**, Select **Themes**, Select **Theme**, Select **Windows Classic**, Click **Apply**)
- Install JRE (if none available on your machine)
 1. If the folder **C:\Program Files\Java** contains any folder named **jdk*** or **jre***, there is already a Java runtime environment installed on your machine.
 2. Otherwise, go to <http://www.java.com/en/download/> and follow the instructions there to install any current version of Java.
- Install vcredist_x86, version 4053
 1. If your machine has
 - the folder **C:\WINDOWS\WinSxS\x86_Microsoft.VC80.CRT_1fc8b3b9a1e18e3b_8.0.50727.4053_x-ww_e6967989**
 - the Manifest file **C:\WINDOWS\WinSxS\Manifests\x86_Microsoft.VC80.CRT_1fc8b3b9a1e18e3b_8.0.50727.4053_x-ww_e6967989.manifest**, and
 - the Security Catalog file

 C:\WINDOWS\WinSxS\Manifests\x86_Microsoft.VC80.CRT_1fc8b3b9a1e18e3b_8.0.50727.4053_x-ww_e6967989.cat,


you already have the needed version of vcredist_x86 on your machine, and you can skip ahead to **Install DB2**.

2. Otherwise, go to <http://www.microsoft.com/technet/security/bulletin/MS09-035.msp>
3. Click on the link for Microsoft Visual C++ 2005 Service Pack 1 Redistributable Package
4. Follow the instructions there for downloading and installing the appropriate version of this redistributable package for your machine.

- **Install DB2**

- Read through all DB2 instructions and comments, below, before beginning.
- These instructions only work if you are **not using DB2 for anything else**. If you are, you are navigating untested waters, but some comments below may help.

1. Uninstall DB2 if it was previously installed (to give you a fresh start).
2. Download and install DB2 Express C 9.7 from [1]. (version 9.5 or later may work).
 - Choose 64bit for 64bit machine and operating system.


 Add a local user, such as **db2admin** (**Start Menu > Settings > Control Panel > User Accounts > Advanced > Advanced > Users > Right Click > New User**).

- This allows you to give it a password that does not expire, reducing your administrative worries.

4. Give local user administrative privileges (**Right click user > Properties > MemberOf > Add > Administrators**).
5. Unzip the DB2 installation package
6. Start **setup.exe**
7. Select **Install a product**
8. Select **Install new**
9. Keep all default settings and enter the password for **db2admin**
10. Select **Do not create profile** in the **DB2 First Steps** window.

- Make sure you do not wind up with more than one database in DB2. If you absolutely must have more than one, make the AVT2 database the default database.

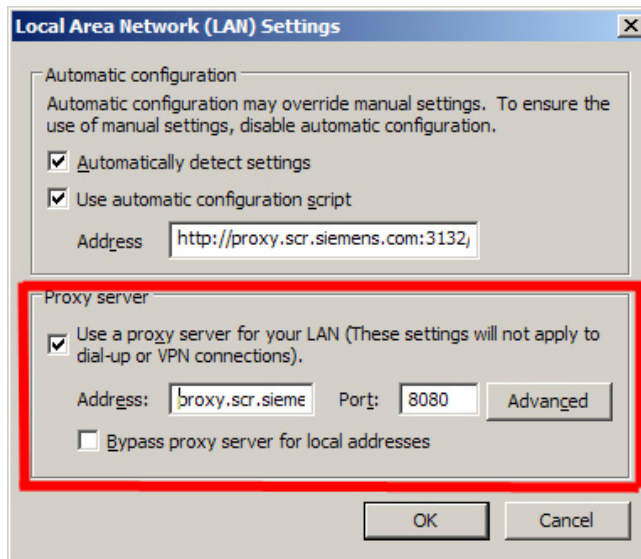
- **TODO:** DB2 Installer has changed since the instructions above were written. Beta user updates to the above are invited. Until then, anything in the installer that does not match the above can probably be safely ignored.

 You may have to deactivate your firewall at the end of the installation when the installer tries to open a web page with next steps. With Check Point Integrity it was not possible to allow only this single action.


4 AVT Installation and Configuration

The following steps describe the installation of the AVT software.

1. If you have run the MVT application of AVT since the last time you logged out or shut down, run the Windows **Task Manager**, click the **Processes** tab, and shut down the **RServe.exe** process(es), if any. (Bug 3190)
2. Start the **avt-installer-NNN.jar** with double click or by opening a command prompt and entering **java -jar avt-installer-NNN.jar**
3. Read the **ReadMe** screen and click **Next**
4. Accept the license and click **Next**
5. If you want to change the default folder **C:\AVT** make sure it does not contain spaces in its absolute pathname.
6. Click **Next**
7. Enter **db2admin** as the database user and the password as chosen earlier and click **Next**.
8. Enter your proxy server address and port, if applicable for your network. These can be found, for example, in IE's **Tools --> Internet Options --> Connections --> Lan Settings --> Proxy server**.



- (If your system does not use a proxy server, leave these settings in the AVT installer dialog blank.)

9. Click **Next** 

The installer will copy the files to the destination folder and, if so chosen, install the database.


--Fred 10:32, 2 April 2010 (UTC) Installing 521 on Windows 7 at this point I get an error msg: invalid type code:FE

--Bob 01:54, 3 April 2010 (UTC) Brave Fred is the first to test this on Windows 7. He may be better advised to revert to Windows XP.

--Fred 10:37, 2 April 2010 (UTC) Installing 521 on Windows 7 connections.properties file does not exist in c:\AVT\XIPHost






--Bob 01:54, 3 April 2010 (UTC) Please let us know if this persists after you resolve the **invalid type code:FE** problem.

See Talk:AVT_Installation#Handling_Working_Directories for suggestion on silently handling working directories.

10. Download and insert certain jar files 

Because of certain anomalies in their open-source licenses, certain libraries must be downloaded from the internet separately and inserted into the AVT installation.

1. Download the following files into AVT\Jars

- **dcm4che-core-2.0.18** and **dcm4che-iod-2.0.18** from <http://sourceforge.net/projects/dcm4che/files/dcm4che2/2.0.18/dcm4che-2.0.18-bin.zip/download>
 - They're in the **lib** folder.
- **saaj.jar** from <http://www.docjar.com/jar/saaj.jar>
- **jaxb-api.jar**, version 2.1.9, from <https://repository.jboss.org/nexus/service/local/artifact/maven/redirect?r=thirdparty-releases&g=sun-jaxb&a=jaxb-api&v=2.1.9&e=jar> 
- **jaxb-impl.jar**, version 2.1.9, from <https://repository.jboss.org/nexus/service/local/artifact/maven/redirect?r=deprecated&g=sun-jaxb&a=jaxb-impl&v=2.1.9&e=jar>
- **jaxb-xjc.jar**, version 2.1.9, from <https://repository.jboss.org/nexus/service/local/artifact/maven/redirect?r=deprecated&g=sun-jaxb&a=jaxb-xjc&v=2.1.9&e=jar> 
- **relaxngDatatype.jar** version 1.0, from <https://repository.jboss.org/nexus/service/local/artifact/maven/redirect?r=central&g=com.sun.xml&a=relaxngDatatype&v=1.0&e=jar> 
- **xsom.jar**, version 20070407, from <https://repository.jboss.org/nexus/service/local/artifact/maven/redirect?r=java.net-m2&g=com.sun.xsom&a=xsom&v=20070407&e=jar> 
- **fastinfoset.jar**, version 1.2.1, from <https://repository.jboss.org/nexus/service/local/artifact/maven/redirect?r=central&g=com.sun.xml.fastinfoset&a=FastInfoset&v=1.2.1&e=jar> 

2. After downloading, wherever the jar file name at the beginning of a line above is different from the name of the downloaded file, shorten the downloaded file name to match the name at the beginning of the line.

- xsom is a special case. Change it to **xsom14.jar**.

3. Copy **AVT\XIPHost\copy-jars.bat** into AVT folder.

- The step above is a bugfix.

4. Run **AVT\copy-jars.bat**
11. (Optional) To change the severity threshold for logging messages (such as those that appear in **cmd.exe** transcript windows),
 - Edit **AVT\XIPHost\log4j.xml**
 - Current lines read:


```
<log4j:configuration threshold="warn"
  xmlns:log4j="http://jakarta.apache.org/log4j/">
```
 - should be modified to, for example,


```
<log4j:configuration threshold="debug"
  xmlns:log4j="http://jakarta.apache.org/log4j/">
```

5 Load Example Data (optional)

The good people at QIBA, through the FDA's Center For Diseases and Radiological Health (CDRH), have generously allowed us to use and redistribute some of their Thoracic Phantom images and annotations, specifically their "Pivotal 40" collection.

The demo subset of this data contains the following:

- One phantom "patient", Yamamoto-51
- Six CT series (two scans each of three tumors)
- Six readers of each series
- Two readings per reader
- RECIST, WHO, and volumetric measurements

In addition, SCR has constructed a set of annotations of the same series, using the ITK algorithm, available as **ITK_1_Y51.zip**. The volumetric measurements in these annotations were performed with the "semi-seg" tool, with no manual adjustment afterwards. The RECIST and WHO measurements were performed manually on the generated contours themselves, not on the original image. The "reader" name is "ITK_1".

The following steps describe the import of some of this example data into AVT. Note that this will delete the current content of the database.

- *Please don't try your own data until you have practiced with the some of the sample data.*

1. Download the following files from AVT's NCI GForge site, specifically from the release called **CDRH Pivotal Demo Data**.
 - **Piv_demo_series.zip**
 - **Piv_Demo_AIMS.zip**
 - (optional) **ITK_1_Y51.zip**
2. Extract the **Piv_demo_series.zip** files into **C:\AVT\examples\CDRH\images**
3. Extract the **Piv_demo_AIMS.zip** files into **C:\AVT\examples\CDRH\annotations**
4. (optional) Extract the **ITK_1_Y51.zip** files into **C:\AVT\examples\CDRH\annotations**
 - *Due to bug 3170, loadCDRH.bat only recognizes DICOM files that have the extension .dcm. Examine each folder of DICOM files. If you find ones that lack the necessary extension, you can invoke the following CMD shell command: **RENAME * *.dcm** in each such folder.*
5. (Optional) When you are ready to deal with more data, come back to this procedure, download other CDRH image zip files and unzip them to the same place as **Piv_demo_series.zip**. Similarly, download and unzip other CDRH pivotal annotation files into the annotations folder. Then,
6. Run **loadCDRH.bat** in **C:\AVT\XIPHost**.
 - This is a common place to encounter errors. Unfortunately, the trace functions spit out a lot of useless information.
 - But, if you encounter the phrase, "The application server rejected establishment of a connection.", then most likely either your database server wasn't running or the credentials offered by the client were invalid.
 - Look in your task manager at the Process tab, where there should be four Image names that start with "db2...". If not, that's the first thing to fix.
 1. **Start-->Control Panel --> Administrative Services** and select **Component Services**.
 2. In the tree browser, select **Services (local)**

3. There should be three **DB2...** services that are "automatic" and that are configured to run with a user login. Make sure the credentials are valid.
 4. Right click on each of them to select "start"
 5. Recheck the taks manager to confirm that there are now four db2... images.
- If that wasn't the problem, check the user credentials.
 1. Open **XIPHost\connections.properties** for editing.
 2. Verify that the userid and password there are valid.
 3. If you had to change them, save the file.
 - Try again.

Similar procedures work for the **MICCAI** and **TCGA** example data.

Note: Currently, AD has a temporary restriction where it can only hold one image collection at a time. The load script clears the database and then loads one collection into AD (See #744).

5.1 CDRH Pilot Data Notes

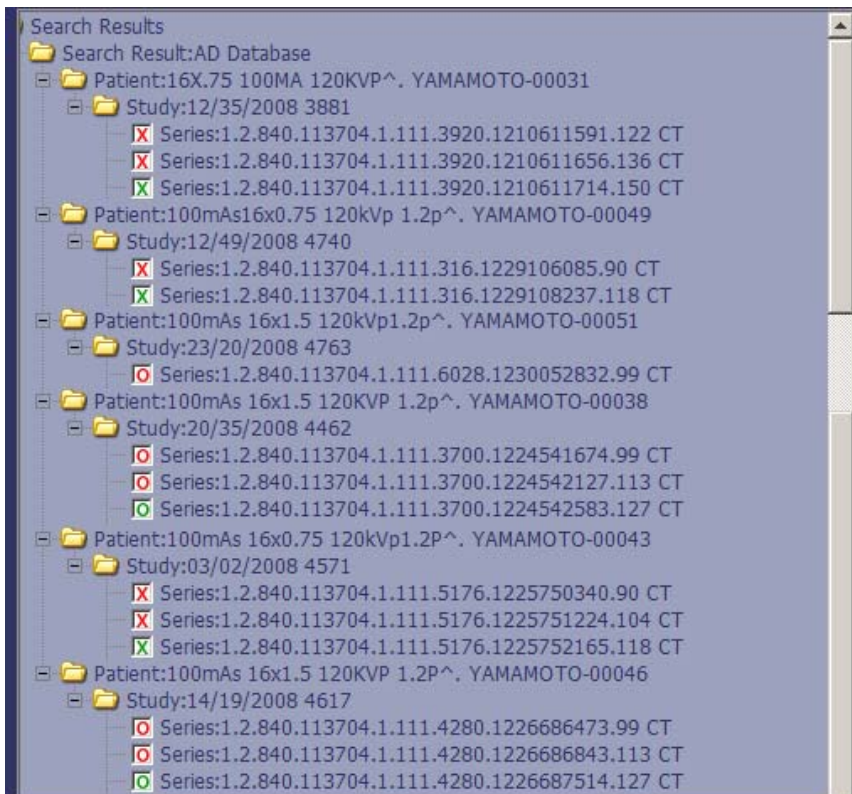
Another sample data set is known as the CDRH Pilot(15) data set. The Pilot data contains 15 series. They are known in the data by two identifiers:

- In the database and in DICOM, by **SeriesInstanceUID**, e.g. **1.2.840.113704.1.111.3700.1224541674.99**
- In the file system and in annotation names, by a simple integer, e.g. **9076**

In the following figure:

- X's denote large series (749 slices)
- O's denote small series (119 slices)
- red marks denote series that have annotations from these Readers: Kaplan_1, Kaplan_2, Byrne_1, Byrne_2
- green marks denote series without annotations from these readers.
- *Unfortunately, the Pilot annotations have not yet been released for public use, and so are unavailable through AVT.*

Hint: the green marks are easy to remember -- they happen to fall on the last CT series of each patient except Yamamoto 00051



and in the following lists:

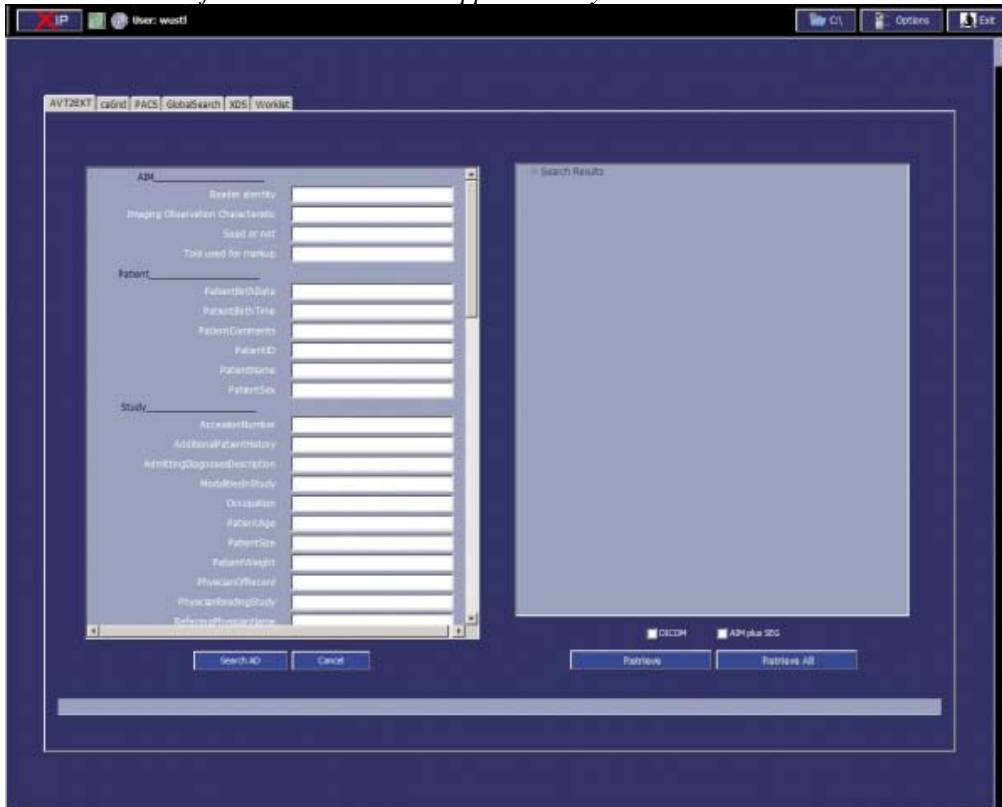
- Small: 526, 7531, 7537, 7543, 9547, 9553, 9559
- Large: 39, 51, 114, 1120, 1126, 9076, 9082, 9088
- Have Annotations: 39, 526, 1114, 1120, 7531, 7537, 9076, 9082, 9547, 9553
- No Annotations: 51, 1126, 7543, 9088, 9559

TODO: Look at each IRByrne_1 annotation, pull out the SeriesInstanceUID, and make a correspondence table indicating both size and whether annotated.

6 Start AVT

The following steps describe how to start XIP Host and one of the AVT hosted applications as an example assuming the CDRH data was loaded.

1. Run **startup.bat** in **C:\AVT\XIPHost**.
 - *The first time you run XIPHost, you will see a login screen with a disclaimer about Personal Health Information (PHI).*
2. If you agree not to use XIPHost for PHI, click **OK**, otherwise give up.
The main screen of XIPHost should look approximately like this:



- If your labels are blank, you probably didn't change your desktop color scheme to Windows Classic theme. This annoyance will be removed soon (Bug #993).
3. Click on tab **AVT AD**
 4. Enter * for **PatientID**
 5. Click **Search AD**
 6. Click on **Yamamoto 51** in the **search results**.
 7. click on the **Study** line that appears below it.
 8. Select the series that appears.
 9. Check the **Series** box above the **Retrieve** button.
 10. Click **Retrieve**
 - *A pop-up window will appear, listing the retrieved database objects in its left pane. Each item is an absolute path name of the temporary file that will be passed to the application. You can copy and paste these path names into other tools to inspect the objects before running the application.*
 11. Select **IA** as the application

In due time, the **Image Annotation** application should appear on your screen, displaying three multi-planar reconstruction views of Yamamoto-51, and a 3D view.

Next

- If you are a TCGA user, follow instructions in A Tour Through TCGA Reader
- Otherwise, follow instructions in A Tour Through AVT2EXT to test that basic AVT functions are working after this fresh installation.

7 Troubleshooting

Most of the problems that new users have reported with AVT Installation have involved the database.

- Failure to connect to database
 - The CMD window for loading the database or for XIPHost may say something about Failure to make a connection.
 - Make sure your database is running.
 - Do this through the control panel of your operating system, to make sure that all the DB2 services that are configured to start automatically are in fact running. If not, check their security credentials.
 - Make sure the connections.properties file has valid userid and password.
 - Make sure it is the same userid for database creation, for administration, and for connection.
 - Test the password, in case it expired.
- Failure to obtain search results
 - Review the steps to load sample data.
- Reporting a problem
 - Set your cmd shell window's scroll buffer to about 3000 lines.
 - Re-run AVT to make sure the bug is reproducible.
 - Note the place in the Tour instructions where you encountered the failure.
 - Send us copies of the shell scroll buffers.
 - Describe what happened.

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