JPEGger Software Documentation

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Introduction

JPEGger is a Microsoft Windows-based system designed to capture images from NTSC cameras and store them in a database for later viewing. The images are captured based on triggers from other applications, which can also provide information to be stored with the image, such as camera name, ticket number and more. Once in the database, the images can be viewed using the JPEGger Viewer, which also runs under Windows. The viewer can also be triggered by another application to display images from a specific ticket number. The viewer program does not access the database directly—rather, it connects to the JPEGger program, which then retrieves the information (including the images) from the database and returns them to the viewer application. With this design, viewer applications can run on any Windows system that has a TCP/IP connection to the system running JPEGger. If the PC running JPEGger is connected to the Internet, images can be viewed from any Internet-connected PC. JPEGger is a multi-threaded client-server application designed to run indefinitely, capturing images and retrieving data for connected viewer applications.

This manual is broken into sections about each of the applications: the Server, the Viewer and the Client. For developers, please refer to the Interface specifications appendix.

JPEGger was originally designed for the scrap industry, so you will see references to scales and weights in the documentation. However, the database is very flexible, and can be adapted to many different applications.

JPEGger Installation

- Download JPEGger Complete Install from http://www.tranact.com/support/downloads
- Install Microsoft SQL Server (2005, 2008, 2008 R2, 2008 Express, 2012, 2012 Express) as per Microsoft's instructions.
- Open Microsoft SQL Server Management Studio. (Start>All Programs>Microsoft SQL Server>SQL Server Management Studio)
  - Note that one needs to configure SQL for mixed mode authentication. To do this highlight the SQL instance and right click for its properties. Then select the Security screen and select SQL Server and Windows Authentication mode.
- Connect to local machine when prompted using Windows Authentication.
- In SQL Studio, File>Open, and browse to C:\Program Files\Jpegger and select the CreateJPeggerDB query file. After selecting that file, select execute at the top of the screen which will create the JPEGger database.
- Note that the script will change some default settings that we recommend changing for most environments. These may be changed based on a specific environment.
- Create maintenance plans for the JPEGger database. Please see our knowledge base article (http://www.tranact.com/knowledgemanager/questions.php?questionid=47)
- Start the Jpegger service. This step is required to create the tables in the jpegger database, which need to exist prior to running Jpegger Configure.
- Open Start>All Programs>JPEGger>JPEGger Configure (as to be run as Administrator). Select the Licensing tab.
- Call Transact Payment Systems with the MAC Address to obtain your company number and a license. Once the company number is typed in, press the set button. Then press Get License button. A message should come back with "License is Valid."
- In addition – if JPEGger is installed on the same server as the SQL database – should the server re-boot the JPEGger service needs to have SQL startup before the JPEGger service will start. Therefore open up Services and set JPEGger to Automatic (Delayed Start). Since Services set to Automatic start first – this will ensure that JPEGger doesn't startup before SQL.

The JPEGger Server

Introduction

JPEGger runs as a service under Windows XP or higher. This means that it will run when Windows starts (not when a user logs in) and continue running even as users log in or log out.

Configuring JPEGger using JPEGger Config

General

JPEG Quality	The JPEG Quality slider selects the default image quality for captures from connected cameras. The range is 1 to 100, with 100 being the highest quality and lowest compression. The higher the quality, the larger the size, but the more detail will be in images captured by JPEGger. The recommended setting is around 75, which is a good trade-off between file size and detail. Note that this value and the following two values (image size and use slow scan) are *default* values, and can be overridden for specific cameras. See the **Cameras** section below for instructions on overriding these defaults for a specific camera. Generally, using higher than 90 does not add to the quality of the native camera image and is not recommended.
Max Width	This selects the maximum image width allowed for camera images in Jpegger. Cameras providing images over the specified width will be resized prior to storage in the database.

Text on Image	Sets up the fields that will be "stamped" on the image by default. See the next section for details.
Use Slow Scan	This option, when selected, causes cameras connected to **Winnov** hardware capture stills in slow-scan mode by default. This mode provides higher detail in 640 x 480 captures. The trade-off is that image captures take longer, and they require multiple frames to capture a single image. This also means that if there's motion while the image is being captured, the image can be blurred or have other defects. This is not necessary for captures smaller than 640 x 480.
Capture extra "sync" image (NTSC)	For Winnov multi-source capture cards, it sometimes requires extra time to sync the image when switching video sources. Checking this box will grab 2 images, saving the second one, to allow for this sync time.
Listen Port	This is the TCP/IP port that JPEGger will listen on for incoming client and viewer requests. This defaults to 3333, but can be set to any open TCP/IP port. All clients and viewers must be also configured to use this port.
JPEGger Location Name	This is the location of the JPEGger system being configured. In a multi-site environment, this is important if images are also being forwarded to a secondary database. JPEGger will store the value of this field in the local and secondary database, in the 'location' field.
Turn on the built-in webserver	Turning this on will allow web browsers to connect directly to JPEGger. The port used will be the **Listen Port** set in this window. To connect a browser to JPEGger, type in **http://IP_addr:3333** (where IP_addr is the ip address of the server running JPEGger) in any browser. To test this feature on the same PC on which JPEGger server is running, use http://127.0.0.1:3333 in a browser window. This will allow basic image retrieval by ticket number. Once the images for a ticket have been retrieved, they can be clicked to show details. This is what will show in the browser window.

<div style="text-align:center">

Welcome to JPEGger Web Viewer

[_____] [Find ticket]

</div>

Save thumbnail image for each ticket	This option, when checked, will cause JPEGger to place a .JPG file in the location specified by **'Path to save captured images'** when an image capture is received with a ticket number, and **save=<y>** included with the capture command. If camera groups are being used, the thumbnail saved will be associated with the first camera in the group – a thumbnail will not be created for each individual group member. The file name will be SD+<ticket number>.jpg. For example, if the ticket number were 123, the filename would be **SD123.JPG**. Use the image size selection below the check box to choose a size for the saved image.
Path to save thumbnail images	The path where JPEGger will put thumbnail images (see above).
Purge local images older	This number reflects the number of days for which JPEGger will maintain local data. Images older than this value will be purged from the local database.

| **than __ days** | JPEGger checks the local database on startup, and each hour while it is running for old images. Set this value based on how long you would like to keep images. A value of **0** in this field will cause JPEGger to never purge data from the database (not recommended). This does **not** affect data stored in the secondary (backup) database. |

Text on Image

This option allows fields captured with the image to be written directly on the image. To enable this image, click on the **Text On Image** button. This will bring up a dialog box with the following options:

Available Fields	These are the fields as defined in the image database. Double-click a field (or click a field and click the **Add** button) to add it to the list of fields that will be written on the image.
Add	Use this button to add the selected field (from the Available Fields list) to the list of fields to stamp on image.
Delete	Use this button to delete the selected field from the Fields to Stamp on Image list.
Fields to Stamp on Image	This list contains the fields that will be written on the image. To edit the position or caption for a field, double-click it in this list.
Move Up	Moves the field up in the list. This is useful if you would like the selected field to be displayed above other fields that are higher in the list.
Move Down	Moves the field down in the list.
Edit field	Brings up a dialog box that allows selection of the position of the field on the image and the caption to be displayed for that field.

Preview	Gives an idea of what the image will look like when stamped with the fields. TrueType text is shown at 50% size in the preview window.
Font	Displays the standard font dialog box to allow selection of font, style, size and color of the font. This applies to all fields on the image.
Shadow Text	When checked, this will cause the text to appear to have a shadow. For dark-colored text, the shadow will be light; for light-colored text, the shadow will be white. This will make the text more legible if the color of the image in the area of the text is a similar color as the text.

Slave Mode

Using JPEGger as a Multi-tier System

The JPEGger master/slave capability can be daisy-chained. In other words, a JPEGger server may be both a master and a slave. This can provide the following benefits:

Images can be stored on multiple systems. In a WAN environment, this can provide local access to all images.

Images can be stored on the slave system(s) during the day and forwarded to the master at night, so as not to tie up too much bandwidth during the day.

Images that are "delayed" will be retrieved on demand.

Keep the camera names consistent. For example, the camera name on the Master system that points to the slave should be the same as the "real" camera's name on the slave system.

Use delayed image uploading on the slave systems if bandwidth is an issue. The images are available on demand anyway.

When JPEGger runs as a master, it will connect to slave systems to retrieve images that were not sent during the initial capture. The Master system settings are used to configure the frequency and time of day for this operation.

When JPEGger is running in slave mode, it will capture images and forward them to another instance of JPEGger. The triggers are designed to come from another JPEGger system.

To implement a multi-tier setup, follow these guidelines:

Run as Slave   Configures JPEGger to run in slave mode.

Delay uploading images Allows the slave system to delay sending images. Images will be stored locally until the time of day and day of week specified by the master JPEGger system. If images are requested from the master system (i.e. by the viewer) that have been delayed, they will be automatically transferred from the slave at that time and stored in the master's database.

Master System IP address IP address of the "master" JPEGger system to which this instance of JPEGger will forward images.

Master System Listen Port The port the master system listens on; usually 3333.

Some additional notes about a Slave/Master configuration:
- During normal operation – taking a picture on the Slave JPEGger will immediately send a copy to the Master JPEGger.
- If Delay Uploading Images is set on the Salve – any picture taken will be immediately copied to the Master except for the associated blob data.
- Setting the batch job Load Delayed Images on the Master will retrieve all needed blob data from the Slave.
- Any disconnect between the Slave and the Master will cause any Slave pictures to be marked as "needs forward". Once communication is re-established – any new pictures will be immediately sent to the Master but the images not sent during the outage will remain solely on the Slave. This will be the case until the "Forward stored Images" batch job runs on the Slave.
- Note that Alerts can be set so that when the "Forward stored Images" batch job runs on the Slave if any images are found that need forwarding a corresponding message can be sent out. Here is an example of a Slave alert:

> **Slave Batch is now OK.**
> **MESSAGE: Slave batch completed: 3 images were not sent in real-time; 3 images successfully sent in batch**

The Alert Type to select to use this feature is Database. See the document section on Alerts for configuration details.

Cameras

The list of configured cameras is displayed on this tab of the dialog box.

To add a new camera to JPEGger, select **Add Camera**.

To edit an existing camera, click on the camera to edit, then click **Edit camera.** You can also double-click a camera to edit it.

To delete an existing camera, click on the **Delete Camera** button.

Clicking on Add Camera or Edit Camera brings up a new dialog box allowing you to enter settings for the camera:

Camera Name The name by which the camera is referred to in JPEGger. Capture requests can request a capture of this camera by name, and this name will also be stored in the database. Name it something meaningful to the site, like "ATM 1". Spaces are allowed in the name, but the "<" and ">" characters are not.

Camera Type Selects the type of camera. Currently, supported cameras include among others: direct-connected camera (Video for Windows device, like a USB camera), the Matrox Cronos capture board, an Axis network camera, a JPEGger Slave camera, a local directory, an FTP directory, a Toshiba network camera or IQEye network camera. Some 35 cameras are supported with others being added as requested. The directory and FTP directory types will read images out of a specified directory when a trigger for that camera is received and store them with that ticket.

Camera Source (Video for Windows device, Matrox Cronos or Axis camera only) Select the **Video for Windows** driver name from this list. If the camera is connected to **Winnov** hardware, you will also be able to select the source number of the camera (as shown in the image).

Image Capture Settings Select **Default** to use the default settings in the options dialog. Select **Custom** to change the settings for this particular camera. When you Click the **Settings** button, you will be able to change the JPEG compression, image size and slow scan settings for this camera. To change the resolution of a device on a slave system, you will need to edit the settings on that system.

Image Stamp Settings	Allows customization of the fields that appear on the image. This will override the default image stamp settings as specified on the **General** tab of the configuration dialog box. For information on how to use these settings, see the **Text on Image Settings**, above.
IP Address	The IP address of the network camera (or JPEGger system running in slave mode).
Port Number	The port number for the HTTP service on the camera (or Jpegger slave system port).
Remote Camera Name	(JPEGger Slave camera only) The name of the camera as defined on the remote system.
LeadsOnline Cam Position	If you are using the LeadsOnline system, select the best description of the camera position.
LeadsOnline Image Type	If you are using the LeadsOnline system, select the best description of the image type.
LeadsOnline Store ID	If you are using the LeadsOnline system (and Jpegger is capturing images from multiple yards), enter the Store ID corresponding to the yard in which the camera is located.

Camera Groups

Camera groups are a way to define multiple cameras to be used in a single capture trigger. For example, if there are two cameras pointing at the same object from different angles, you may want to capture stills from both cameras without having to send separate capture commands to JPEGger. When JPEGger is used with Transact's payment system utilizing u/Switchware, it requires that the ATM group be defined in order for ATM pictures to be captured during a transaction. From this tab, you can:

Add a group   This will allow you to type a new camera group name.

Add a camera   When selected, this will allow you to choose a camera from one of the defined cameras in JPEGger.

Delete   This will delete the selected camera or camera group.

Suspect Reports

The Scrap Software vendor will be able to assist a site in the creation of what is termed a Suspect Report. This is simply a tab delimited file containing a list of tickets that meet some criteria that qualifies them for a little closer scrutiny. The first row in the file is column titles and subsequent rows have corresponding data. The first column has to be the ticket number. This particular tab allows the site to specify where these reports will reside.

Three entries are allowed on this screen.

Path to save review files	This is the directory on the JPegger server where Suspect Report files are placed for subsequent review.
File extension for review files	The default extension is sdm. This can be changed as needed.
Forward received suspect reports and images to the following JPEGger servers	The Host name or ip address and the associated server port for JPEGger.

Licensing

In order to use the Jpegger service, a license must be issued by Transact Payment Systems. Jpegger is usually licensed by site, but a camera license is sometimes issued as well. In order to issue a license, we require the Mac address that Jpegger reads from the host system. This can be viewed on the Licensing tab. We will issue an account number, which will need to be entered. Once the account is entered, you can click the "set" button next to that field, then press the "Recheck Status" button.

While Jpegger is checking for the license on Transact's web server, you will see the following:

Once Jpegger is successfully licensed, you will then see this:

Leads Online configuration

If you are required by law to upload images to Leads Online, this tab will need to be configured. The following table explains the fields on this tab:

Send data to LeadsOnline	Check this box to enable LeadsOnline image uploading.
Leads Online FTP Server	The qualified host name for the ftp server. This is usually **ftp.leadsonline.com**
LeadsOnline Login	The login assigned by LeadsOnline for your account.
LeadsOnline Password	The password associated with the login.
LeadsOnline Store ID	The store ID assigned to your account. If you are driving multiple yards from one Jpegger server, you may have multiple store ID's. In that case, this becomes the "default" store ID and store ID's are configured by camera.
Time of day to run FTP Batch	Images are uploaded to the Leads Online server in a large batch; this field specifies the time to begin the upload process. It is usually advised to do this after business hours, so as to not interfere with bandwidth needed for normal business operations.
Number of days to look back	If there are problems with a batch upload, some images may not be transferred. This specifies how far to look back in the database for images that failed to upload (each image is flagged as uploaded when it is successfully transferred – this prevents the same images from being

transmitted multiple times).

Use Secure FTP Usually required by LeadsOnline.

JPEG Quality Specify the JPEG compression to use for each image transferred to leads.

Max Image Size Specify the maximum image size to be sent to LeadsOnline. If the image is larger than the specified size, it will be resized prior to transfer.

E-mail retrieval

The configuration of this tab will allow JPEGger to interact with the inbound mailbox of the person specified. When activated - JPEGger will monitor the specified email address taking the attached picture in any new email and saving it in its database. The Table Mappings palette is used to tell JPEGger which emails to analyze and what data to associate with the saved picture. If the emailed picture was configured to be associated with a ticket number for instance then JPEGger would save it along with the ticket number in the email subject line. Subsequently requesting the display of a ticket number would retrieve all images associated with the ticket including the emailed picture.

After selecting the Check for e-mailed images box - the following table explains the fields on this tab:

IMAP4 Mail Server Host Name	This is the name of the server hosting the user receiving the emailed image. To date this E-mail retrieval functionality has only been verified and tested using gmail – i.e. enter the Host Name as imap.gmail.com
Port Number	If SSL is not selected – this port will usually be 143. If SSL is selected it will be 993.
User name	The gmail username where one will be emailing pictures to and which will then be monitored by JPEGger.
User Password	The password associated with the login.

Check for mail every n minutes	The desired time interval that you want JPEGger to query the gmail account for the arrival of new emails.
Table Mappings…	This is the dialog box to use that will tell JPEGger how to make sense of the emails it queries in the mailbox.
Test Settings…	Once the tab is completed – selecting this control will attempt to connect to the gmail account. If everything was input correctly – a good connection confirmation message will be displayed.
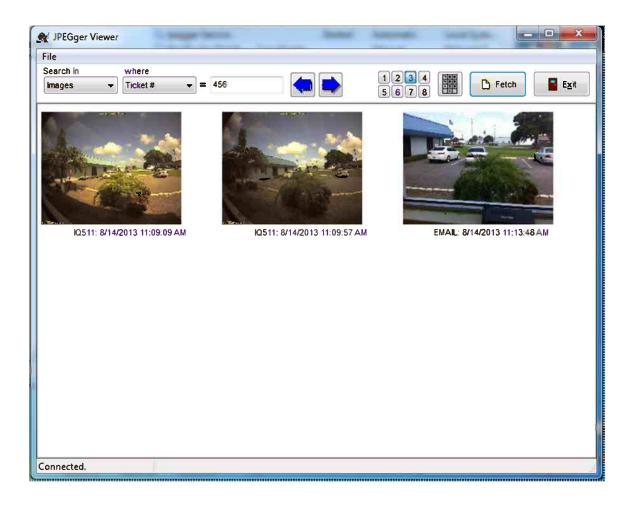
Table Mappings

Controlling how JPEgger handles the email messages it reads requires both the creation of a Subject Prefix entry and a properly constructed email message.

As an example – if one wanted to take a picture and have it saved in the images table and associated with ticket 456 – one way to do this is shown above. The Subject Starts With entry is what JPEGger will use as it scans emails. Any email with a subject line that starts with a "t" will be a candidate for inclusion. However – JPEGger will only process the email if it also has the ticket_nbr in the subject line as well. In our example – the subject should be "t 456".

Setting up this E-mail Retrieval tab as shown and emailing a picture with the correct subject line will then allow JPEGger to process the email and save the attached image. It will then allow one to use MultiViewer to view all the images assigned to the ticket. In our example – 2 previously saved pictured existed and the newly emailed photos has now been added.

Test Setting

It is recommended that after configuring the E-Mail retrieval tab for the first time that one selcts the Test Setting option. It should generate a confirmation similar to this:

Followed by this screen after selecting OK:

Alert Hosts

If you are interested in receiving alerts for different events that might occur in your JPEGger application then follow the instructions as outlined. For alerts to properly function – one configures JPEGger to issue the alerts but you will also have to have the Transact Universal Driver configured and running on a host that will be listening for and properly responding to the alerts sent by JPEGger.

The following table explains the fields on this tab:

Add Host…   Selecting this control will bring up the Edit Alert Host palette as shown

Friendly Name   Since TUD is the application that will be processing the alerts generated by JPEGger – this is the familiar name of the host server where TUD is running and that JPEGger will be communicating with.

Host or IP Address   The ip address or machine name of the server where TUD is running.

Port Number   The port number on the server running TUD that JPEGger will connect to send its alerts. TUD will in turn be listening on this port.

Filter by Camera   Enabling this feature will in turn populate the associated field with all known cameras defined in JPEGger and will subsequently process only those alerts generated by the camera selected.

Send down alerts every n minutes   The time interval to be used by JPEGger for the issuing of alert messages.

Because the alert operability uses TUD – its configuration screen is shown here. For a full description of the Transact Universal Driver installation and configuration – please refer to its documentation located at http://www.tranact.com/support/downloads. Note that the JPEGger alerts being sent are basic xml and a customer is free to process them as needed and not use TUD.

The available options on this tab are detailed as follows:

Listen for Alerts on Ports #   The port on which TUD will be listening for alerts issued from JPEGger.

Use Gmail to send mail   Select this option if one is using a gmail account to pass along any defined alerts. This is the account that will be sending the messages.

Use other SMTP server   Selecting this option will open up a new field where one will be asked to enter the SMTP hostname or IP (for e-mail).

A key part of the Alert tab is the Alert Handlers that need to be created. In the example below 3 have been defined – one for Cameras, one for the JPEGger service, and one for the JPEGger database.

The following screen shows how to create an Alert Handler for a Camera.

Alert Type	Select the alert type desired. The three that JPEGger is sensitive to are Database, Camera, and Service. Selecting database or Service displays a portion of the Alert Action palette.
Display pop-up message on this PC	The PC running TUD will get a pop-up alert if this option is selected. A sample of what a camera alert looks like follows. For a Service or Database Alert – the message is displayed instantly as the problem occurs. For a Camera problem – the TCPIP communication thread has to time out so an alert may not appear for some 30 seconds after the attempt to use it has failed.
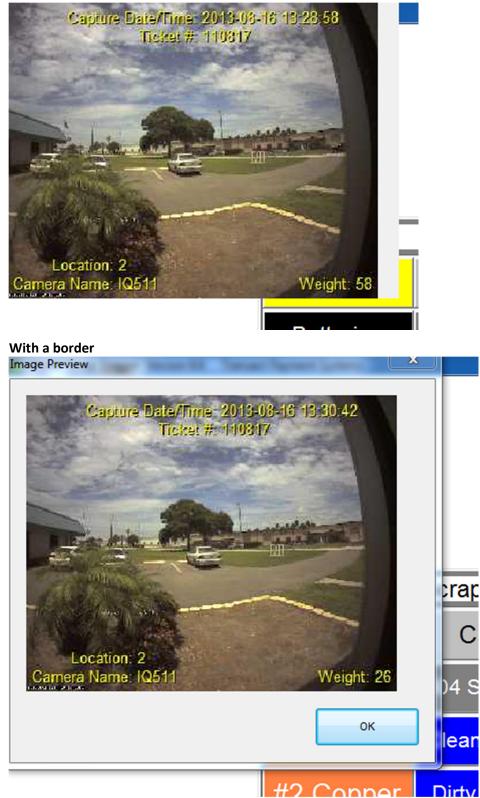
Send E-mail	This is the email address of the person that will receive the alert message.
Schedule…	Select this feature if one needs to schedule the email transmission activity. This is a fully functional schedule tool that covers the entire week.
Filter By	The default selection is all cameras however one can limit the alerts to any single camera. Note that if one filters by a specific camera – the same camera needs to be configured in both TUD and JPEGger. Remember – JPEGger is monitoring the camera and sends the alert to TUD. TUD processes the alert and sends out the email to the user.
Show Image on good capture	Select the image display features as needed. This is a useful tool in that having a picture show briefly immediately confirms that the JPEGger database, JPEGger service, TUD, and the camera are all operating normally.
Show all images for ticket	In that many tickets have multiple images associated with them – if one would like to see all these images then select this option. This selection will activate the JPEGger Viewer and look similar to this:

Show each image individually   This feature will display the 1 image that was just taken. One is able to customize a few things about how and where the image appears.

Image Preview Options   One can select where on the screen the image is displayed, as well as whether it will appear with or without a border, and how many seconds it will remain visible. The border option is nicely shown in the following two images.

Without a border

With a border

Archiving

Since JPEGger uses SQL as its core database application - for those customers who desire to manage their archiving within SQL – this configuration tab will make that process fairly easy.

Note that this JPEGger Archiving feature must be run on the SQL server where the JPEGger database resides. The Stored Procedures and commands being executed cannot be run on a remote server. The normal complete install of JPEGger includes the JpeggerConfig.exe and Archiver.exe files. Just copy these two files to an appropriate directory on the SQL server. A sample completed Archiving tab is shown.

The first time the Archive runs – it will create an **archiver** database which contains the scheduled job details. One can see the job in the Task Scheduler – a sample is shown below. The job name will always be JPGARCHDEFAULTx where x will be incremented with each new schedule created. A separate scheduled job will be created for each day check marked on the setup tab. Once the tab is saved - any change in the schedule will be reflected in the scheduled jobs.

Also initially created is a **Defaultyyyymmdd0001** database. The data files (mdf) will be located in the Archive Location defined on the Archiving Tab. As the Archive job starts it scans the CUST_PICS_data, FINGERPRINTS_data, INVTAGS_data, LICENSES_data, REGISTRATIONS_data, SHIPMENTS_data, SIGNATURES_data, and images_data tables searching for records that satisfy

the criteria specified. Any eligible record will have its record copied to the Default database along with the associated blob. Subsequent Archives will add to the initial database each time the Archiver runs - up until the set database size limit is reached. At this point a new **Defaultyyymmdd0001** will be created. Each time the archive runs it will add records to this archive database and only after a successful insert will it then delete the archived record from the active database. Note that this Archiving Tab is exactly that – it moves the record to the Default database. Also note that if the specified criteria is such that no records are selected for Archiving – the Default database is still created – it will simply be empty.

The following table explains the fields on this tab:

Archive Location	This is the fully qualified path to the desired directory where archives will be stored. This location can be a local directory, a remote file share, a NAS drive, etc. This directory must already exist for the Archive to successfully run. If this directory is moved, etc. – the Archive job will fail to run.
Archive images older than (months)	The number of months that JPEGger will check against as it scans the database for records to be archived. This archive rule applies to all data tables (CUST_PICS_data, images_data, etc.) as well as the blobs tables were all images reside.
Max size of archive (GB)	The maximum size of the archive database. If the database will be copied off to say a DVD-R SL type of device (current capacity is about 8.5 GB) – it is suggested that the max size be set to 8 GB so that the database would fit on a single DVD when copied. Once this size is reached another archive database will be created.
Archive admin e-mail address	The email address for the admin person that needs to be informed of archive related alerts. The alerts that will soon be made operational will send an email in these situations: - Archive job failure - Archive database full
Run Archive on following days	Select the days that the archive should run. The selection does not need to be limited to a single day.
Time to run archive (hh:mm)	Time of day that the archive is to start. Times after 12 noon use the 24 hr clock.
Mount Archives in Jpegger	If one desires to have Jpegger query commands search the Archived databases for an image to display – include those databases here. The following page provides a few more details of this behavior.

Just a note about ticket searches as they relate to mounted Archives. In the example above –
only the one Default database is mounted. Any ticket search will always start with the primary
database. Once the ticket is located the search will terminate and the Archive database will not
be examined. If however – the ticket cannot be found in the primary database then the search
will continue starting with the mounted Archive database at the top of the list. The search will
continue through each mounted archive until the image is located. Again – subsequent Archives
are not queried once an image is located.

Storage Tiers

Storage Tiers should be used in place of Archiving as opposed to being used in conjunction with the Archive feature. Since the majority of a JPegger database size is associated with the blob data – the Storage Tier process is designed to give the user control over how and where this blob data is stored. With the maximum file size of 10 GB per database in SQL Server 2008 R2 and 4 GB for SQL Server Express 2008 and earlier – this Tier feature is a useful option to manage database size.

The Tier 1 entry is a default and cannot be deleted. The only option available to the user with Tier 1 is to manipulate the copy and purge selections.

First of all the Copy Option. This can be understood more correctly as a copy to the next Tier option. If a second Tier is not defined – no blob copies will take place. Also – purges occur only if the copy command is successful.

Immediate   Selecting this bullet will case Jpegger to copy all existing blobs to the next Tier and any new images will be immediately copied.

After N Days   In selecting this bullet – Jpegger will do a date calculation on all blobs taking its sys_date_time and the entered number of days to determine if it qualifies to be copied.

As a new Tier is added or edited – then the Tier Type selection and the Base Path field become available.

Tier Type   One can select either database or File System. The database selection will require that one provides a legitimate JPegger database along with the SQL Server Instance, the Database Name, User Name, and Password.

Immediate   Same as for base Tier.

After N Days   Same as for base Tier.

Base Path   The directory where the blobs will be copied. This directory needs to be
                                  created ahead of time. It can reside on any local or remotely available file
                                  system.

Just to elaborate on the Storage Tiers some more – the following shows a sample of what one
will see as this feature starts to run:
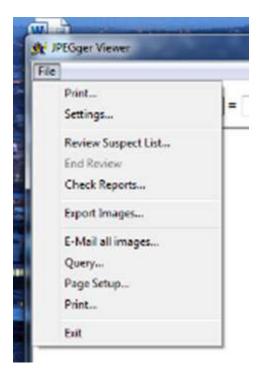
Note that in the Archive directory where the blobs are to be copied – 2 subdirectories now exist.
So that these directories won't have too many images – Jpegger will examine the blob_id of
each image and place those with id's between 0 and 9999 in the 0 directory, between 10000
and 19999 in the 1 directory, etc. The resulting number of blobs in each directory will as a
result vary to some degree.

The JPEGger Viewer

The JPEGger Viewer is a Microsoft Windows-based program that allows viewing of JPEGger image captures and associated data.

Configuring the JPEGger Viewer

The features of the JPEGger Viewer are all selected via the File tab.
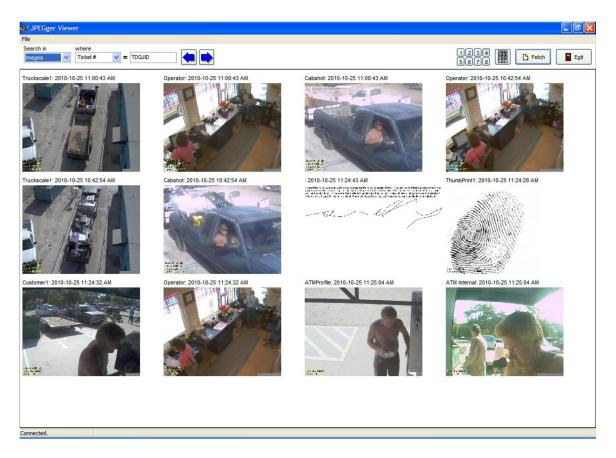
The following settings appear in the JPEGger Viewer **Settings** dialog box on the **General** tab:

Connect To	Lists the defined JPEGger servers. Use the **Define New…** and **Delete** buttons to edit this list.
JPEGger Port number	The TCP/IP port JPEGger listens on. Default is 3333.
Location to view	In a multi-site system, the desired site name to use for searches
Suspect Report Format	For SAI reports, choose SAI. For standard comma-delimited reports, choose "Other comma-delimited."
Use preview images	Beginning with release 2.0 of Jpegger, small previews are stored in the database along with the full size image. Checking this box will use these images on the main window instead of the full sized image.,

The JPEGger Viewer Main Window

Following are a description of the controls and actions that can be done on the main window:

Search In	The table to be queried.
Where	The field name that will be queried.
Text entry box	The value to search.
Left arrow button	When a ticket number is being viewed, this button will locate the next lower ticket number in the database. When a Query List is being viewed, this will go to the previous ticket number in the list.
Right arrow button	When a ticket number is being viewed, this button will locate the next higher ticket number in the database. When a Query List is being viewed, this will go to the next ticket number in the list.
1 2 3 4 5 6 7 8	Select the number of columns to be shown in the viewer. Images will be scaled to fit.
Keypad button	This button pops up an on-screen window that allows entry of a ticket number. This is designed for touch-screen users so a keyboard is not necessary to enter the ticket number.
Fetch button	This button will retrieve images for the specified table and field(s).
Exit	Quits the JPEGger viewer. Pressing Escape will also exit the program.
Images	Clicking on an image will bring up image details for an image (or open a non-

JPEG file). You may also right-click an image to pop up a menu of available options. The menu contains the following:

Open – Brings up the details for that image, or opens the file

Email—Send the file via e-mail.

Save As—Save to a file on the hard drive.

Status Bar   Contains the status of the connection to the JPEGger server. Will identify the location the viewer is connected to, if connected. Also displays whether the viewer is in review mode.

Adding images to a ticket number

In some locations, inspectors in the yard may take digital photos of a load or vehicle. These images can be added to JPEGger using the following steps while in the Viewer.

- Bring up the ticket number that the images will be added to.
- From Windows Explorer, locate the .JPG images that you would like to add to the ticket.
- Select all the images for that ticket.
- Drag them into the JPEGger Viewer window. If necessary, you can first drag them to the Task Bar onto the JPEGger Viewer icon, which will bring the JPEGger Viewer window to the front.
- Release them in JPEGger.

The images are added. The ticket is automatically refreshed, so the images should be immediately shown. Also note that JPEGger uses the creation date of the file being added as the system date and time for the image in the database. Note that if this date and time is older than the images captured by JPEGger, the image will be purged sooner than the other image if purge is being used.

Another way to add images is to use the **Send To->Jpegger** option in Windows explorer. This shortcut should be installed when the Jpegger Viewer is installed using the Jpegger setup. When files or images are sent to Jpegger Viewer, you will see the following dialog appear:

From this dialog, you can

- Select the table, field and field value you want to apply to the selected files or images.
- Get a preview of the selected query
- Remove individual files from the list that was sent to Jpegger.

Clicking the **Import** button will complete the import of the images.

The Image Details screen

When viewing image details for a particular image, all of the data fields stored with the image are displayed at the top of the window. The actual image capture is shown at the bottom of the screen. In addition, there are several other buttons on this window, detailed below.

Save As…   Allows the image to be saved to a JPEG file. A dialog will be presented

		allowing the user to select a location and a name for the file. The .JPG extension will be automatically appended to the file name.
E-mail...		Brings up the e-mail window, allowing the image to be sent to an e-mail recipient.
	[zoom out icon]	Zooms out by a factor of two. The limit is 25% of the original image size.
	[zoom in icon]	Zooms in by a factor of two. The limit is 200% of the original image size.
	[previous arrow icon]	Moves to the previous image in the query.
	[next arrow icon]	Moves to the next image in the query.
Exit		Closes the image details window.

The Suspect Report Window

Suspect Reports can be viewed using a one-off feature on the local file system or by taking advantage of the reports being saved to the JPEGger server.

First of all we will look at the **Review Suspect List**. This is a tab delimited file as defined under the Suspect Reports section as part of Config. Selecting this option will open a Suspect details box under the main viewer dialog.

The Suspect Report Window appears when reviewing a suspect report containing more than one column of information. The grid displays all information in the report, with the current ticket selected. The following actions can be done in this window:
Click on a row to go review that ticket.
Columns may be resized by clicking and dragging the dividing line between the column headings.
Columns may be moved by clicking and dragging from the center of the column heading to the desired position.
Double-clicking a cell (except ticket number) will hide the column.
Right-clicking on the report brings up a menu listing the columns. Columns may be shown or hidden by checking or unchecking the menu items, respectively.

When the review process is complete – select End Review.
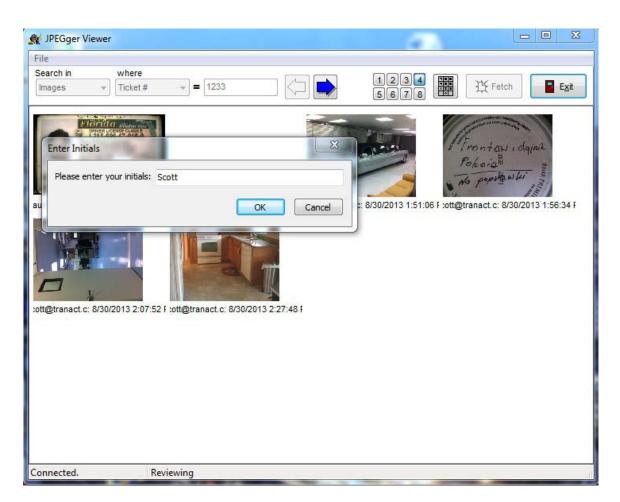
There are a few additional features available if one has selected **Check Reports**.

Again – this is displaying a collection of reports placed in the specified directory on the JPEGger server. Within the Check Reports feature – all tickets have to be reviewed before the End Review will function. Also - double-clicking on a ticket number or pressing F12 on your keyboard will mark that ticket for follow-up. Selecting one of the reports displays the rows of tickets in a similar fashion as the Review Report List.

If a ticket has been selected for follow up action – once you End Review the following dialog box is displayed requesting sign-off initials:

When the review is completed, you will have the option of sending it back to the server, saving a copy, or e-mailing a copy of the suspect report. One can select none or all actions as needed.

Completing this box will then move the active Suspect report to a Completed directory and it will be removed from the Unreviewed tab listing.

The Followup and Reviewed tabs allow the user to organize and re-visit Suspect List as required.

The File Menu

Settings   Displays the configuration settings for the JPEGger Viewer.

Review Query List...   Allows review of a list of suspect tickets. The list should be a text file with one ticket number per line in the file. This list can also be a comma-delimeted file with other information (like the reason for the review) in the 2nd, 3rd columns and so on. In this case, the file should contain the column names as the first row in the report. When reviewing this type of file, the Suspect Review window appears (see explanation above) to display the additional information.

End Review   Cancels the "review suspect list" mode.

Check for Reports...   Asks the server to check for unreviewed reports in the server's assigned review directory. If reports are found, gives the user the option to review them now. Also on the reports dialog is an option to E-mail a link to the report. The link file can then be opened in JPegger Viewer and will connect to

the appropriate server and retrieve the specified report.

Export Images…	Allows all images from current query to be exported.
Export images and video…	Exports all images from current query to a directory, and exports Milestone video from corresponding cameras around the time that each image was captured.
E-mail all images from this ticket…	Brings up the E-mail window allowing the user to E-mail all of the images in a ticket to an e-mail recipient.
Query…	Brings up the query window for locating specific images in the database. See the section on the query window, below. This item is only enabled after a connection to the JPEGger server has been established.
Page Setup…	Brings up the standard Windows printer setup dialog.
Print…	Allows printing of all images in the current ticket, or printing a report that includes all tickets on a particular day.
Exit	Exits the JPEGger Viewer.

The Query Window

The query window is split into 3 tabs:

Pick a day	Allows a single day to be selected from the calendar and queried.
Custom query	Allows a custom query to be built using any searchable fields in the specified table.
Query Results	Once the **Build it** button has been clicked, the window will display this tab and results will be shown in a grid.

The query window allows most fields in the image table to be searched, and the results displayed in a table. Once the query has completed, individual records, the entire ticket or the complete list of tickets found by the query can be reviewed.

The results pane

Once a row has been selected, the **Show Image** and **Show Ticket** buttons become available.

- Clicking **Show Image** brings up the image details for the selected image. Double-clicking the row has the same effect.
- Clicking **Show Ticket** is the same as entering the ticket number on the main form and clicking the **Fetch** button—it will retrieve all images for the selected ticket number.
- Columns may be resized by positioning the cursor between columns and dragging when the cursor changes the "splitter."

The Pick a Day tab looks like this:

This tab allows you to quickly pull up all images for a specific day. Simply click on the day you would like to query, and click **Build it** or press Enter.

Command-Line Arguments

The following command line arguments can be supplied to JPEGger Viewer:
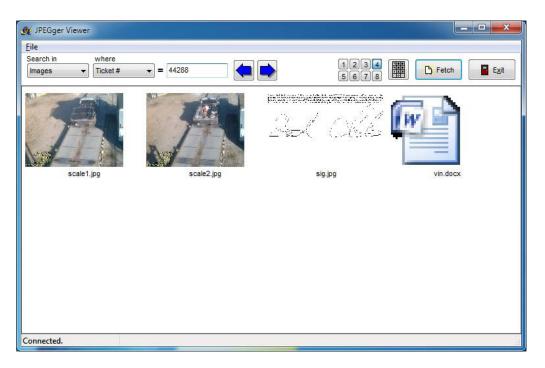
Suspect=c:\temp\suspect. txt	Use **suspect=** to review a list of tickets contained in that file.
Table=shipments	Use this argument to switch from the default "images" table to a different table in the database.
Field=receipt_nbr	Select the field name to use when building the query
Value=123	Select 123 as the value for the field being queried.
Location=yard2	Filter results for only that location.
-videxport 123 124 125	Start a video export for ticket numbers 123, 124 and 125.

Managing other file types in Jpegger

The Jpegger viewer and Jpegger database is capable of handling essentially any file. Any file can be added using the Jpegger Viewer and then opened later.

Method 1: Drag and drop

To add an existing file to a particular ticket, simply use the Jpegger viewer to display that ticket on the main window, then drag the file in to that ticket:

Once the document has been added to the ticket, you can simply click to open it. Other options can be found by right-clicking the document:

- Open—opens the document (the same as clicking on it)
- Save As—Presents the save file dialog to allow you to save the document
- Email—Opens your default e-mail application with the document as an attachment

Method 2: Using the "Send To" menu option from Internet Explorer

In addition to JPEG images, any document can be sent to Jpegger by right-clicking the file (or files) and selecting Send To->Jpegger. Please see the section on **Adding images to a ticket number** earlier in this document.

Exporting Video

The Jpegger Viewer has the capability to export Milestone video for cameras that match up with Jpegger cameras. The first step is to install the Milestone Client on the PC. Once installed, the configuration dialog in the Multiviewer should have the **Jpegger/Milestone Setup** tab visible:

After configuring the Milestone server information, this dialog can retrieve a list of cameras from Jpegger and Milestone (by clicking on the respective button) and allows you to map Milestone camera to the corresponding Jpegger camera. For each matching camera, simply click on the Milestone camera name, then click the corresponding Jpegger camera name. Once complete, click OK.

To export video, pull up a ticket in the Viewer, then click File->Export Images and Video. The following dialog will appear:

The JPEGger Client

The JPEGger Client is a Microsoft Windows-based program that performs functions for the JPEGger system. Before the client can be used, it must be configured. The following items appear in the JPEGger client **settings** dialog box (accessible from the file menu).

JPEGger IP Address	The IP address of the JPEGger server to connect with.
JPEGger Port number	The TCP/IP port JPEGger listens on. Default is 3333.
JPEGger Viewer Path	The full path name of the JPEGger Viewer application. If the client program will be used to launch the viewer program, the location of the program must be specified here.

The first function of the Client is to forward Image Capture commands from another Windows application. To activate this feature, pass **capture** and the following command line arguments, separated by spaces:

camera_name=<name>	The desired camera or camera group to capture. Camera names and groups are configured in the JPEGger program.
ticket_nbr=<value>	The ticket number to be associated with this image capture. Either ticket_nbr or receipt_nbr should be provided with each capture command.
App_date_time=<value>	The date and time of the capture, as recorded by the calling application. This is optional. Date/time format should be yyyy-mm-dd hh:mm:ss
Receipt_nbr=<value>	The receipt number to be associated with the capture. This is optional.
Transaction_type=<purchase|sale>	This field is designed to track whether the transaction is a purchase or sale transaction.
Tare_seq_nbr=<value>	This will record a tare sequence number for the transaction. Designed for a transaction with a multiple weigh-ins.
Save=<y>	Pass this to save images to a directory specified on the JPEGger server. This feature must also be turned on at the server.
Event_code=<string>	This field will be stored in the database along with the captured image(s). Specify the reason for the capture (i.e. gross weight, tare weight, etc.)

The other purpose of the JPEGger client program is to associate the user of a UNIX-based application with a Windows workstation. This feature is designed to allow the UNIX-based application to send JPEGger a request to display images from a specific ticket number to a user's PC. To do this, the user must log in to the UNIX application and the JPEGger client with the same

user ID. To log in to the JPEGger system, the user clicks the **Log In** button on the main window of the JPEGger client program, and enters the user name the user is using on the UNIX application. That information will then be transmitted to the JPEGger system. The application can then be minimized, but must continue to run on the user's PC. From that point on, any requests by the UNIX system to display images will be forwarded by JPEGger to the JPEGger client, which will in turn launch the JPEGger Viewer.

Appendix A: The JPEGger Images Table

The following table lists some of the fields in the images table and their intended purpose. As of version 2.0, the jpeg_image filed has been moved to the **blobs** table and is joined to the images_data table by a view called **images**. All other tables intended to store images are linked in a similar way to the **blobs** table. The blobs table also contains a field to contain a small preview of the jpeg image.

Field Name	Field Type	Description
capture_seq_nbr	Integer	The JPEGger-generated sequence number for the capture. This number is unique to a specific JPEGger server and unique in the local database. In the secondary database, this number combined with the **location** field is unique.
sys_date_time	Date/time	The date and time the image was captured by JPEGger.
swx_date_time	Date/time	The date and time of the transaction from u/Switchware (optional—will only have a value if the transaction was triggered by u/Switchware)
app_date_time	Date/time	The date and time of the transaction as generated by the application triggering the capture (optional—will only have a value if the application provides it)
sys_seq_nbr	Integer	The u/Switchware system sequence number of the transaction.
ticket_nbr	String(10)	The ticket number of the transaction. Generated by the application triggering the capture, or by u/Switchware.
location	String(40)	The location of the JPEGger system. This is supplied by JPEGger and is configured in the Options page. Each installation of JPEGger should have its own unique location identifier in the secondary database.
camera_name	String(15)	The name of the camera as defined in JPEGger that captured the image.
camera_group	String(15)	If the passed camera_name is a group, it is saved in this field.
tag_nbr	String(10)	The license tag_nbr of the corresponding vehicle. Currently not implemented.
receipt_nbr	Integer	The receipt number as generated by the calling application.
tare_seq_nbr	Integer	The passed tare sequence number of the capture.
transaction_type	String(15)	The type of the transaction—'P' for purchase or 'S' for sale. Passed by the application requesting the capture.
jpeg_image	Blob	The JPEG data of the image.
event_code	String(20)	The reason for the image capture. This could be 'gross weight', 'tare weight' or whatever the triggering application wants to use as the reason for the capture. This field is optional.
image_delayed	Integer	Used internally to indicate if the image is present on a slave system.
Slave_seq	Integer	Used internally to indicate the sequence number of the image on the slave system.
Cust_name	String(50)	The name of the customer. Not required.
Cust_nbr	String(10)	An identification number for the customer. Not required.
Weight	Integer	The weight of the load at the time of the weigh-in. Not required.

Cmdy_nbr	String(10)	The id number of the commodity being weighed. Not required.
Cmdy_name	String(25)	The description of the commodity being weighed. Not required.
Man_weight_flag	Integer	A flag indicating whether the weight was manually entered in the scale system. Not required.
Branch_code	String(3)	A code to uniquely identify the branch or yard. Not required.
Ticket_type	String(1)	A code to identify the type of ticket being created. Not required.

Adding Additional Fields to JPEGger

JPEGger has the capability to add fields to the image table that the customer requires. To do this, edit the file named **fields.csv**. It is easier to edit using Microsoft Excel or another spreadsheet program capable of editing the csv type. If you use a text editor, fields are simply separated by commas. No spaces should be present between the commas and the fields. The first row of the file contains a description of the fields in the file; these are described below. Please do not remove existing fields from the file, as they are used in JPEGger.

Field	The actual field name that will be added to the database.
Type	The field type. Valid types are integer, timestamp and varchar.
Size	The size of the field for **varchar** types.
Required	Indicates if the field is required. This should be set to 0 for added fields.
Desc	The description of the field. This will be used in the viewer to display the name of the field.
Display	Indicates if the field is to be displayed and searchable in the viewer. Normally should be set to 1.

Adding Additional Tables to JPEGger

JPEGger has the capability to add additional tables as required. To do this, edit the file named **tables.csv** found in the data directory. Here's an example of a table defined using tables.csv. Note that the first line is reserved for the purpose of that column; that line should not be repeated if additional tables are added.

Field	Type	Size	Required	Desc	Display	Index	Unique
table licenses							
capture_seq_nbr	integer	0	1	Capture Seq #	1	0	0
id	varchar	15	1	License ID Capture	1	1	1
sys_date_time	timestamp	0	0	Date/Time	1	0	0
location	varchar	40	1	Location	1	0	0
camera_name	varchar	15	0	Camera Name	1	0	0
camera_group	varchar	15	0	Camera Group	1	0	0
jpeg_image	blob	0	0	JPEG Image	0	0	0
cust_nbr	varchar	10	0	Cust. #	1	1	0
last_name	varchar	40	0	Last Name	1	1	0
first_name	varchar	40	0	First Name	1	0	0
address1	varchar	40	0	Address 1	1	0	0

address2	varchar	40	0	Address 2	1	0	0
city	varchar	40	0	City	1	0	0
state	varchar	2	0	State	1	0	0
zip	varchar	10	0	Zip	1	0	0
update_flag	integer	0	0		0	0	0

To begin a new table, use the **table** keyword, followed by the name of the table on a line by itself. Then list each field required for the table. Always include **capture_seq_nbr** and **jpeg_image** to be able to store images in Jpegger.

Appendix B: Database Size Calculations

To calculate the approximate number of megabytes used per day by the JPEGger system, you will need to estimate the following:

Transactions per day

Number of cameras per transaction

Image size (usually between 30-50K, depending on desired size and quality)

Then to calculate the size used per day (in megabytes), use the following formula:

((Transactions per day) x (Cameras per transactions) x (Image size) /1024

An example would be a site doing 200 transactions per day with 4 captures per transaction and an average image size of 50K. This yields a result of 800 pictures per day (39 MB per day), or about 200 MB per week, equating to 10 GB per year.

Appendix C: Jpegger Interface Specifications

General interface information

JPEGger requires only a couple of fields to be able to capture an image successfully. These fields are the camera name (there are multiple cameras being driven by JPEGger) and the ticket number. Without a ticket number, the image will still be captured, but the user will have no way to retrieve the image later.

The Capture Command

To capture an image in JPEGger, an application needs to execute the **jpeggerclient** program (or connect directly to the service—see the TCP/IP Interface section) and pass along the capture information to the JPEGger server, which will then capture the image and store it in the database. The syntax is as follows:

Jpeggerclient "capture param_name=<value>…"

Valid **param_name** variables are **camera_name**, **ticket_nbr, location**, **app_date_time, tare_seq_nbr** and **transaction_type**. Values need to be enclosed in the **<** and **>** characters. This is to eliminate any confusion when there are spaces in the values. Here are details on each of the parameters:

Field Name	Description	Type	Required
App_date_time	The date and time from the passing application.	String; YYYY-MM-DD HH:MM:SS	No
Ticket_nbr	The ticket number.	String(10)	Yes
Camera_name	The name of the camera or camera group.	String	Yes
Location	The name of the JPEGger system that the cameraclient program will connect with. The location name will be looked up in the /usr/bin/camerahosts file as detailed in the configuration section above.	String	No
Tare_seq_nbr	A sequence number in a multiple-tare situation	Integer	No
Transaction_type	Either "sale" or "purchase" to indicate the type of transaction.	String(15)	No
Save	Specify "y" to indicate that the first image in the captured camera group should be saved to an external file on the JPEGger system. Specify "n" or leave out to indicate that the image is not to be saved.	String(1)	No
cust_name	The name of the customer	string(60)	no
cust_nbr	The customer number	string(15)	no

weight	The weight of the load	integer	no
cmdy_nbr	The commodity code number	string(10)	no
cmdy_name	The name of the commodity	string(25)	no
man_weight_flag	A flag indicating whether the weight was taken manually (0=no, 1=yes)	integer	no
Count	The number of images to capture	Integer	No
Interval	The interval, in seconds, between each capture if multiple images are being captured.	Integer	No

Here is a sample command with all the fields being used.

Jpeggerclient "capture camera_name=<gross> ticket_nbr=<123456>
app_date_time=<2001-11-14 14:23:34>"

Note from the sample that it is case insensitive for all parameter names and values, as well as the capture command itself. It is easiest to enclose all of the parameters in quotes, as the shell will misinterpret the < and > characters as redirections. Optionally, the calling program may specify this program to be run in the background in order to resume processing as quickly as possible. This can be done by placing a –L argument as the first argument. If your calling software waits for the return of the launched application, this is recommended.

The Show command

In addition to the capture command, a UNIX executable can send a show command to JPEGger. This is designed to let a user on a Windows system running a telnet connection to the UNIX application view images captured by JPEGger. The user on the Windows system will log into the JPEGger client program with a user name, which will then wait for a show command to be forwarded from JPEGger. The UNIX program sends the user name and the ticket number to show to JPEGger, which forwards it to the correct client. The syntax is similar to the capture command:

Cameraclient "show user_name=<john> ticket_nbr=<12345>"

This command would then cause the Windows system to display images captured for ticket number 12345 on John's PC. In this case, the user must have logged in with a user name on the UNIX application, and that name must match the name in the JPEGger system. The **location** parameter may also be included (see the Capture command, above).

The Transfer command

The **transfer** command is designed to allow a UNIX program to transfer a file to the Windows PC running JPEGger. The only parameter required is **file_name**. The **location** parameter may also be included (see the Capture command, above). The file will be received by JPEGger and placed in the directory specified in the JPEGger configuration. This command is intended to transfer a list of suspect tickets to Windows for review by the JPEGger Viewer. The command would look like this:

cameraclient "transfer file_name=<file>"

File size needs to be less than 2 GB.

The Map command

The **map** command can be used to map a relationship between a ticket number and a receipt number. It can be called with multiple field=<value> parameters to associate a ticket with multiple receipts or a receipt with multiple tickets. The only expected fields are **receipt_nbr** and **ticket_nbr**. A sample command would look like this:

    cameraclient "map receipt_nbr=<12345> ticket_nbr=<A1234>"
    or
    cameraclient "map receipt_nbr=<12345> ticket_nbr=<A1234> ticket_nbr=<A1235>
        ticket_nbr=<A1236>"

The Void command

The **void** command can be used to "unmap" a relationship between a ticket number and a receipt number. This is used when a ticket or receipt is voided and the relationship established with the map command (above) is no longer needed. The only expected fields are **receipt_nbr** or **ticket_nbr**. A sample command would look like this:

    cameraclient "void receipt_nbr=<12345>"

In this case, all tickets associated with receipt 12345 will no longer be associated with receipt 12345.

The Copyimage command

Copyimage is used to copy an image from one table to another. The most common use for this command is to copy a license image from the licenses table into the images table. Here's how that would look:

    Cameraclient "copyimage source=<licenses> dest=<images> licenses.id=<100>
    images.ticket_nbr=<123>"

The Export command

This command is used to export all images from a specified ticket or list of tickets. The command will output a CSV file containing all data from each image, as well as a JPG file of the image itself in the same directory as the CSV file. The first row of the CSV file will contain field names for each record. The last column in the CSV file will be '**filename**' and will contain the filename (no path) of the image associated with that record.

There are several fields you can use to configure the export:

Field Name	Description	Type	Required
max_field_len	The maximum desired field name length that will be output into the CSV file.	Integer	No
filename	The name of the CSV file, including full path, that is to be generated.	String	Yes
ticket_nbr	The list of ticket or tickets to be exported (separate multiple ticket numbers by commas)	String	Yes

To determine when the export has completed, you can poll for the existence of the output file. As soon as the file exists, the export is complete. Here is a sample export command:
Cameraclient "Export ticket_nbr=<123,124>filename=<C:\temp\export\export1.csv>!"

The ADDLOOKUP command

The ADDLOOKUP command is used to define a lookup field. Jpegger Multiviewer will display a drop-down list of possible values for a lookup field instead of a free-form text box. It would be helpful to the user to define a lookup field if it contains a relatively short list of possible values for searching, especially if they are not obvious (like abbreviations for sites, etc.). To use this command, pass the following fields:

Field Name	Description	Type	Required
Table	The table in which the lookup field resides	String	Yes
Field	The name of the lookup field.	String	Yes
Primary	Indicates if this is the primary lookup field for the table. If a field is flagged as primary, it will appear on the main screen of the Multiviewer when that table is selected.	Y or N	No
Lookup	This contains both the lookup value and the lookup display text (the text that will appear in the dropdown), separated by a comma. Include as many of these as necessary	Two strings, comma separated	Yes (at least one)

The REMOVELOOKUP command

This will remove a lookup field. The only required fields are TABLE and FIELD.

The SETPRIMARYSEARCHFIELD command

This will indicate that the Multiviewer should "default" to this field for searches. If the table also has a primary lookup field, the Multiviewer will display the lookup field as a dropdown and then force searches to be done on the specified primary search field. The only required fields are TABLE and FIELD.

The REMOVEPRIMARYSEARCHFIELD command

This command causes the specified field to no longer be the primary search field for a table. Required fields are TABLE and FIELD.

XML commands

Any of the above commands can be sent to Jpegger using XML format instead of the Jpegger native format. To do this, the command becomes the "root" node of the XML, and each field will be under the root node. Here's a sample capture command in XML:
<CAPTURE>

```
 <TICKET_NBR>123</ TICKET_NBR>
 <CAMERA_NAME>SCALE1</CAMERA_NAME>
 <WEIGHT>1450</WEIGHT>
</CAPTURE>
```

Report Commands

There are a series of commands that can be sent to Jpegger that deal with suspect reports. They are as follows:

CHECKREPORTS – Checks for existing suspect reports. If reports are present, Jpegger will return the count followed by a !.

LISTREPORTS – Returns a list of reports, one per line. Each line contains the file name and date, separated by a comma. The final line has a ! at the end.

GETFIRSTREPORT – Returns the contents of the filename indicated by the **filename** parameter. If **filename** is not specified, it will return the oldest report. Prior to sending the contents of the file, Jpegger will respond with **file_size=<1234>**! where 1234 is the size of the file. Then Jpegger will stream the entire file; there will be no terminator at the end of the file.

FINISHREPORT – This is designed to complete the review of a suspect report. The following parameters are accepted:

INITIALS	The initials of the person signing off on the review.
FILENAME	The name of the report that was reviewed.

Field formats and types

- When passing the **app_date_time** parameter, JPEGger expects it to be in YYYY-MM-DD HH:MM:SS format. This is optional.
- The **ticket_nbr** parameter should be alphanumeric and 6 digits maximum.
- The **camera_name** parameter can refer to a single camera or a camera group. Generally, a camera group is specified. Groups can be defined within the Jpegger configuration dialog.

Here is a sample command with multiple fields being used.

> capture camera_name=<gross> ticket_nbr=<123456> app_date_time=<2001-11-14 14:23:34>

Windows Interface

Transact Payment systems has also written a small Windows executable to connect to the JPEGger server via TCP/IP and pass along the capture information to the JPEGger server, which will then capture the image and store it in the database. The server's IP address and Port are configured within the JPEGger client application. A Windows application need only execute the **JPEGgerClient** executable with appropriate parameters in order to do a capture. The syntax is as follows:

> JPEGgerClient.exe capture param_name=<value>…

Valid **param_name** variables are **camera_name**, **ticket_nbr**, and **app_date_time**. Values need to be enclosed in the **<** and **>** characters. This is to eliminate any confusion when there are spaces in the values. JPEGger is case-insensitive when processing parameters and values. Here are details on each of the parameters:

- When passing the **app_date_time** parameter, JPEGger expects it to be in YYYY-MM-DD HH:MM:SS format. This is optional.
- The **ticket_nbr** parameter should be alphanumeric and 6 digits maximum.
- The **camera_name** parameter can refer to a single camera or a camera group. Generally, a camera group is specified. Groups can be defined within the Jpegger configuration dialog.

 Here is a sample command with multiple fields being used.

      JPEGgerClient.exe capture camera_name=<gross> ticket_nbr=<123456>
      app_date_time=<2001-11-14 14:23:34>

Also note that the **map** and **void** commands listed above for the UNIX cameraclient executable is also supported in the Windows executable. The **show** and **transfer** commands are specific to UNIX and should not be used.

TCP/IP Interface

The TCP/IP interface is the preferred method of sending triggers to Jpegger. Here is the flow:

1. Connect to Jpegger on the configured listen port (3333 by default).
2. Once connected, send the string as detailed above (i.e. capture camera_name=<scale1> ticket_nbr=<123>… etc.). Make sure to terminate with the **!** character.
3. If Jpegger is configured for returning a response, it will send back either OK or FAILED followed by CRLF. This response is optional; if not configured, Jpegger will not send anything back. The response indicates whether the request was processed correctly; it does not indicate a successful capture of the camera(s).

Application notes:

- Your application should allow for configuring Jpegger. Required configuration parameters will be: IP Address, Port, Camera Names (typically one per scale). If you would prefer to adopt a convention for the scale camera names, that is acceptable also (i.e. scale1, scale2 etc.). Since camera names can be configured in Jpegger, this is not critical to allow complete naming capabilities in your application.
- It is recommended to use asynchronous socket calls if possible. If for some reason Jpegger is unable to accept TCP/IP connections or the Jpegger server is down, a connection attempt may take up to 30 seconds to time out. Since the application is likely in a live environment, it would be inadvisable to let it "hang" for this 30 seconds.
- Please implement the MAP command if possible as well. This provides a seamless way to link ticket numbers (used when capturing scale images) with receipt numbers (used when paying tickets). This allows Jpegger to show images taken when creating the card and paying with an ATM or cash dispenser.

Suspect List Handling in JPEGger

Suspect List Generated from UNIX System

If the application generating the suspect list resides on a UNIX system, the following steps will accomplish viewing of the images of the suspect tickets.

1. The UNIX application will need to generate a list of suspect tickets and store it in a file. The list should be a list of ticket numbers, one per line in the file.
2. The UNIX application will need to execute the **cameraclient** program with the following parameters:
   cameraclient "transfer file_name=<filename>"
   filename should be the full path to the suspect list to be transferred.
3. The **cameraclient** program will transfer the file to JPEGger.
4. JPEGger will store the file in a location specified in the configuration settings within JPEGger.
5. The **JPEGgerView** program can then be run from Windows. From the **File** menu, select **Review Suspect List…** and open the file that was transferred. Each suspect ticket may then be reviewed.

Suspect List Generated from Windows System

If the application generating the suspect list resides on a Windows system, the following steps will accomplish viewing of the images of the suspect tickets.

1. The Windows application should generate a list of suspect tickets. The list should be a list of ticket numbers, one per line in the file.
2. The file should be stored in a location accessible from the PC that will be doing the review.
3. The **JPEGgerView** program can then be run from Windows. From the **File** menu, select **Review Suspect List…** and open the suspect list. Each suspect ticket may then be reviewed.

Appendix D: Credits

Image capture in JPEGger uses the Winnov Active/X controls shipped with their line of video capture boards and/or the Matrox ActiveMIL Lite Active/X controls.

All other code copyright 2001-2010, Transact Payment Systems, Inc.