

Signature verification

The SigCompServer

SigCompServer™ is a stand-alone independent platform, specializing in handling hand written signature images. It supports verifying, identifying, authorizing and securing working processes within the organization.

The challenge:

Each and every financial organization, especially banks, have as a daily routine to verify various documents such as checks, invoices, export and import documents, and other legal documents. In many cases, financial documents are produced as a part of payment procedure; an important stage in handling these documents is the verification of a hand written signature appearing on the document. Sometimes, in addition to a verification procedure, an authorization procedure is required too, both requiring adequate auditing and control functions.

Automation of handling hand written signature images reduces costs and errors. Identifying and verifying the customer or the users' signatures will be done on-line, accurately and reliably. The bank operators will have to handle a very small quantity of signatures, those that were denied or rejected by the system, freeing recourse to business generating functions.

SigCompServer – Signatures Handling System

Terminology

Matching rate – the similarity degree of the processed signature versus the specimen stored within the system

Tolerance Rate – is a parameter defined at the implementation stage. This parameter will be checked when a signature is verified. If the Matching rate will be lower than the Tolerance rate the signature will be rejected. When higher the signature specimen will be approved.

Signature profile - is a repository of specimens of one user within the database. The Signature profile is used by the system in order to compare and analyze signatures on various documents in order to calculate the similarity degree.

Functionality

Signatures capturing process

Signatures can be uploaded into the **SigCompServer™** database in two modes:

- **Batch mode** –signature specimens are imported from a file according to a predefined structure. The batch process will validate each user identifier, check that specimens are valid, digitize each specimen, encrypt and store them into the database.
- **Real time mode** –the user signs (hand written signature) on a form 4-6 times. The form is scanned and stored in the system. **SigCompServer™** processes the signature specimens, validates the user unique identifier, checks the signatures, digitize, encrypt and stores them within the database.

As a result of this stage **Signature profiles** for each user will be constructed.

Signature Verification process

- Financial documents (e.g. checks) are scanned and images are stored as JPG or TIFF files.
- A primary key is assigned to each image, such as customer ID or user ID.
- The system retrieves the customer's or the user's profile from the database according to the primary key
- The system identifies the signature area within the scanned document and initializes **SigCompServer™** for signature verification.
- **SigCompServer™** will execute an internal process and compare the signature on the scanned document to the signature profile in its database. The system will determine a **Matching rate**. In case the **Matching rate** is lower than **Tolerance rate** the document will be rejected, otherwise, it will be approved.
- In case of rejection the document is directed for manual handling. The manual process will display the signatures specimens stored in Database for the operator to execute a manual comparison.
- The operator will approve or disapprove the document. Users' ID, date and time, primary key, and **matching rate** will be stored in the system for further or future investigation and reporting.

Group Verification

SigCompServer™ supports multi-verification process, thus comparing one signature on scanned document to more than one profile. The process will be assigned a customers' group key. It will select all the group profiles stored in the database, compare the signature on the document, and calculate the matching rate for each profile. The system will return results in an array consisting of the profiles primary keys and the matching rates.

AD-HOC signature verification

SigCompServer™ supports verifying signature even in cases a profile was not created and pre configured in the system, it offers comparing 2 signatures Ad-Hoc, comparing the signatures and calculating a specific *matching rate*.

The core engine

The **SigCompServer™** core engine uses an artificial intelligence engine that executes a self-learning process in real-time, Every time a verification process is executed and resulting in a matching rate greater than a pre defined parameter in the system it aggregates the signature information as a part of the signature profile.

This self-learning engine reduces rejection rates and improves the ratio between success rates and false acceptance rates.

Accuracy

Signature Verification process – for comparison of one signature to a profile of 3-6 specimens success rate is between 82%-87% at a false accept rate (FAR) of 3% at the most.

AD-HOC signature verification – for comparison of 2 signatures ad-hoc, success rate is between 77% at 3% FAR at the most.

Technology

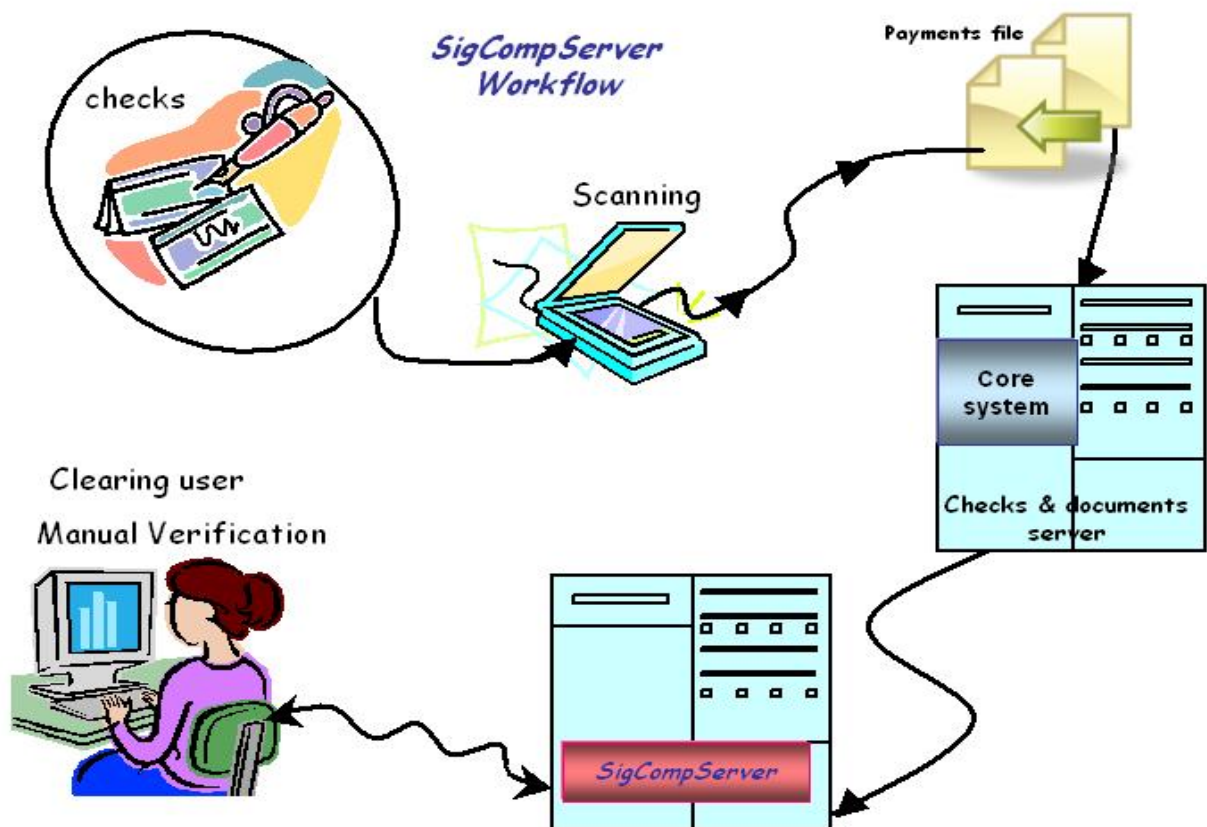
- Database – Microsoft - SQL Server. Other relational standard database can be implemented
- Database sizing - for 1000 users – 1 GB.
- Database and software will be installed on the same server.
- Operating system – Win XP.

Licensing options

Our Pricing proposal relates to number of profiles (customer or user) signatures.

Scope of the system can be expanded easily to additional areas such as bank customers' signatures verification and identification, delivery notes, shipping orders and etceteras.

Signature Verification Workflow



Advantages

- The system is user friendly and easy to use, optional training is provided, and our experience proves very quick implementation time frames.
- Automation of the signature verification procedures will minimize number of errors and reduce operational risk. Less than 3% of the signatures will have to be manually verified. It will shorten the manual procedures and reduce costs. **SigCompServer™** provides highly secured process with low risk of errors or fraud.
- **The SigCompServer™** comprises of a high-level state of the art software. Its Artificial Intelligence capabilities consist of the most innovative knowledge in the hand written signature verification and automization area.
- The product supports sophisticated utilization of the system that can even reduce the mismatching rate.