Oyster Software, Inc.

FormsPro™

The Forms Processing System

*Oyster Software's **FormsPro** replaces outdated paper based data entry and older Imaging systems with automated form-based transaction processing to provide state-of-the-art forms processing. Its data capture system utilizes the latest in technology, including OCR/ICR and IFR (Intelligent Form Recognition).*

FormsPro:

- Increases timeliness and accuracy of data entry
- Improves data integrity
- Reduces labor costs for data entry personnel
- Improves cash flow from financial transactions
- Enables other image-based applications to enhance billing and customer service
- Provides user configurable, multi-form OCR processing

FormsPro provides many ***competitive advantages***, including:

System integration: No proprietary third party hardware or software is required: a **FormsPro** installation can operate using a heterogeneous environment of scanners and recognition engines.

Scalability: Run 1000 to 5,000,000 pages per day simply by adding hardware or software modules to the base system.

Flexibility: Add new forms to the system for processing in a matter of hours. System processes are setup to run unattended at specific intervals; **FormsPro** keeps a detailed log of background processes statistics.

Competitive pricing: Rapid return on investment, within six to twelve months.

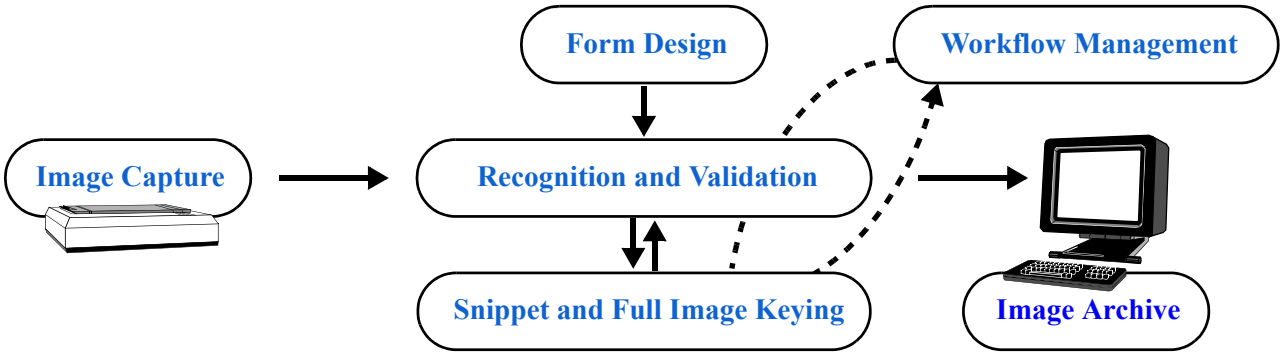
"The performance of our FormsPro system at the Toledo site is exceeding all expectations. The volume of work that used to take 40 people over two shifts now takes 5 people a single shift. Our accuracy of 2 errors in 10,000 fields is 300% better than our manual method. Demonstration of the system has had a very positive impact on selling our services to the point that we will soon need to double our capacity."

SAM OTTENLIPS, SR. VICE PRESIDENT
EMERGING TECHNOLOGIES, MARITZ, INC.

"Training has been simplified because of how FormsPro presents work types to the operators. New form set up is user friendly and has reduced the dependency on the IS department as new forms can be setup without any programming efforts from the IS area. FormsPro has provided us with the needed flexibility to stay competitive in the industry."

DON KRIPPNER, DIRECTOR
OFFICE OPERATION, FINGERHUT CORPORATION.

System Operations



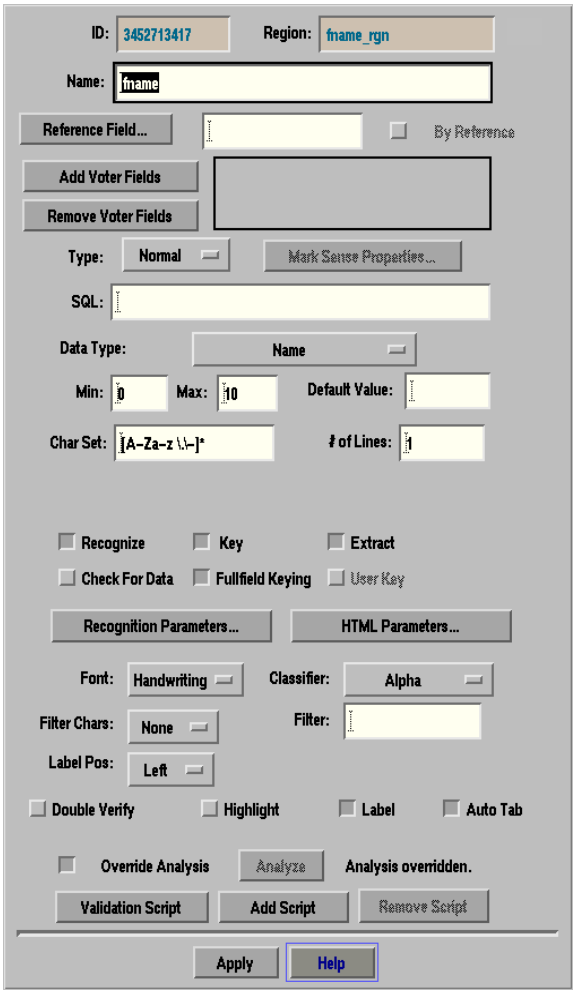
Form Design

Before **FormsPro** can process scanned images, the user must define the graphical and logical aspects of the form using the Form Definition tool. The Form Definition function provides a unique, integrated system in which scanner settings, IFR/OCR/ICR parameters, workflow routing, validation rules, data edits, table lookups, and keying layouts via a simple user interface - without any programming.

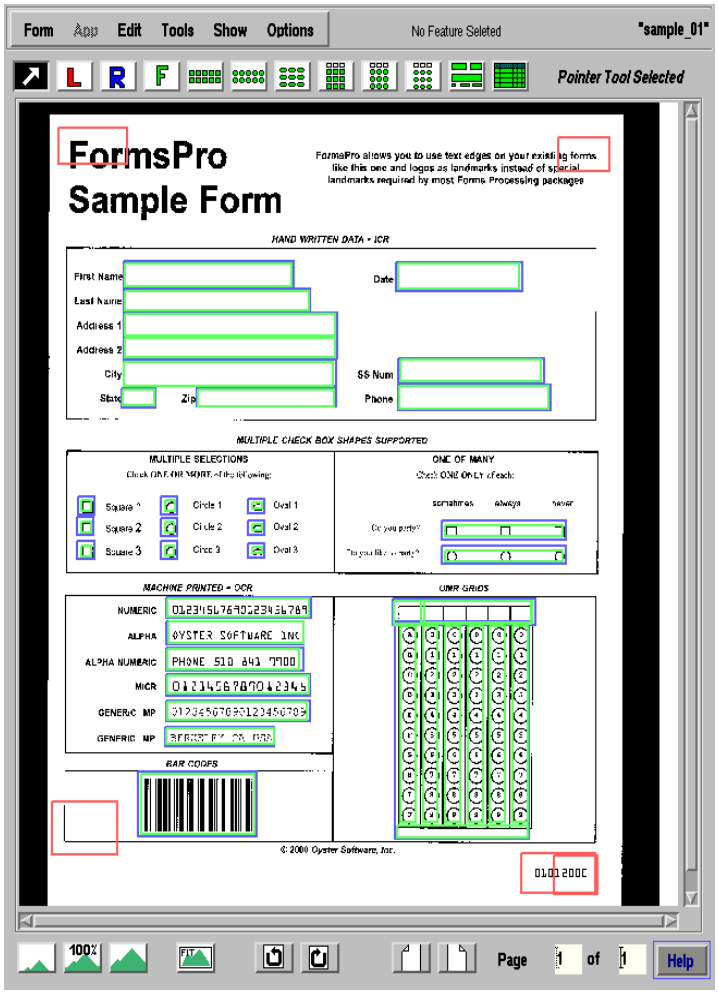
The user defines a form by scanning an example and then electronically selecting the pertinent **landmarks**, **regions**, and **fields** of the sample image.

An electronic editor prompts the user to define properties associated with the overall form and each region/field:

- **Form Properties** - number of pages, single or double sided, page size, scanner settings, routing information, quality control parameters
- **Region Properties** - type of region (e.g. address, signature, data table), image size of subsequent review work, keying instructions (for default queues, image presentation, and data protection), field variances within regions, keying templates and validation scripts
- **Field Properties** - field type, field size, data type (numeric, alpha, or alphanumeric), character set, number of lines, recognition parameters, confidence level, font, recognition classifiers, line/box removal



Field Properties Screen

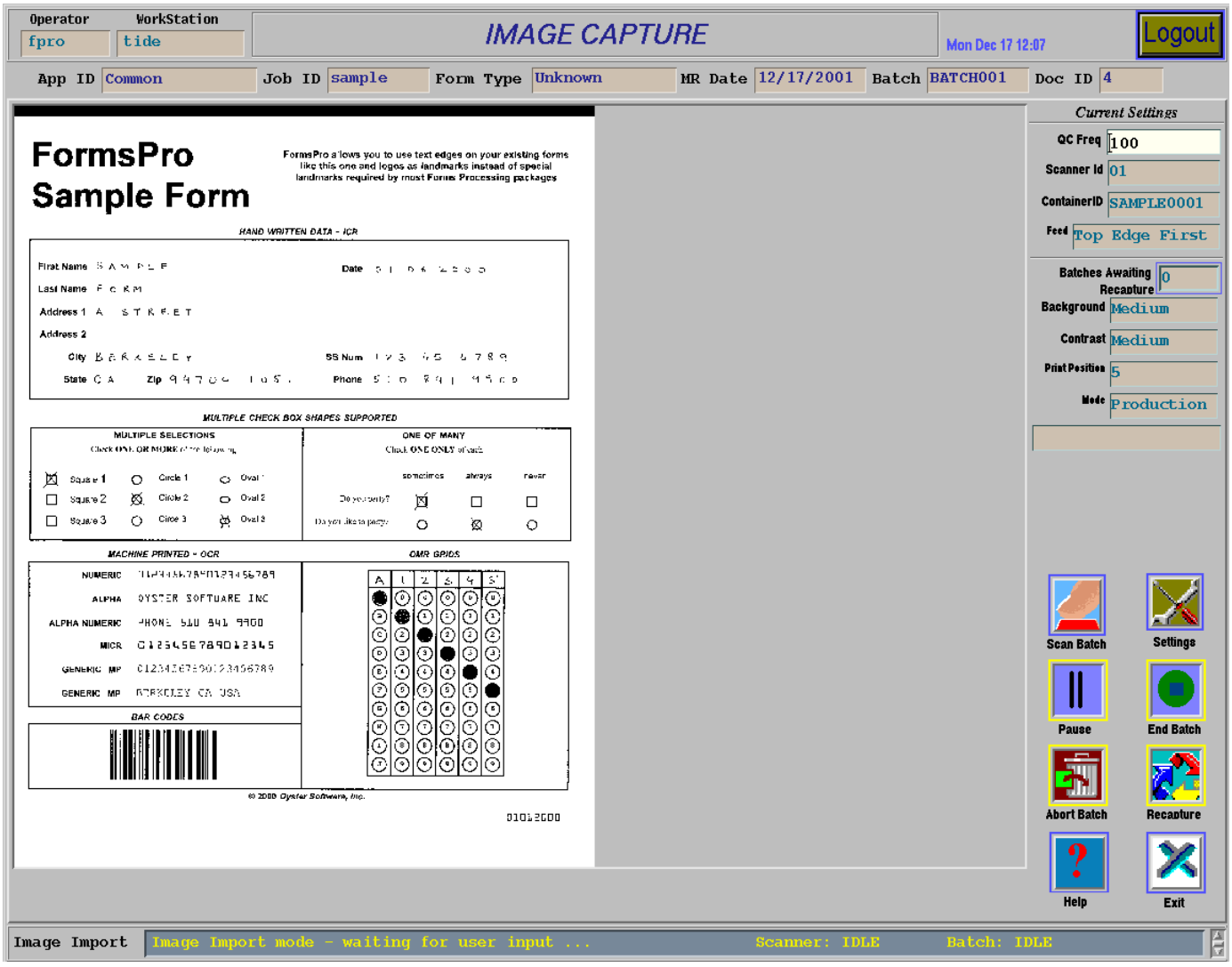


Form Definition Tool Screen

Image Capture

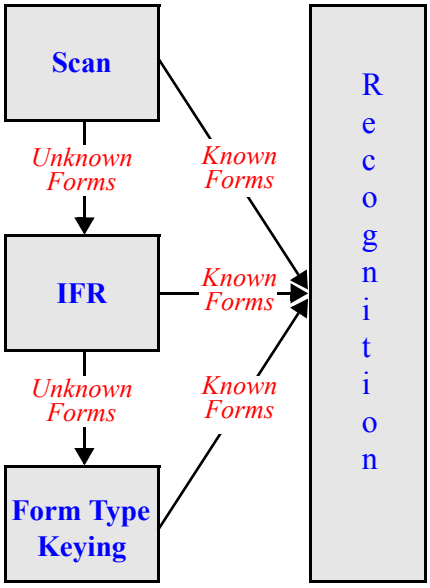
Once a form is defined, batches of forms are scanned (or read directly from a fax server) using the Image Capture application.

While all scanner functions are controlled by the Form Definition settings (see “Form Design” on page 2), the Image Capture function does allow the user to override the standard settings for a specific scan, if desired.

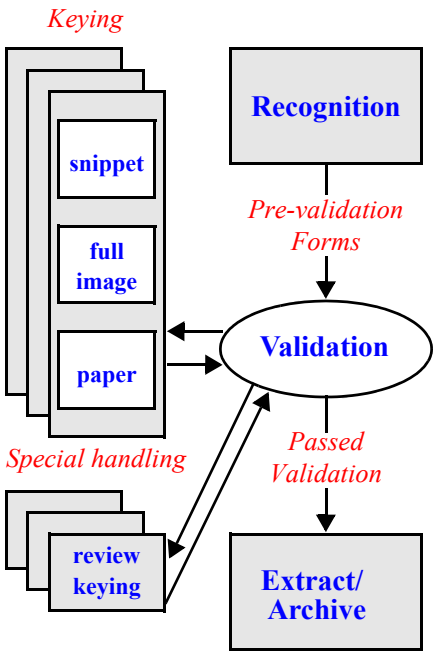


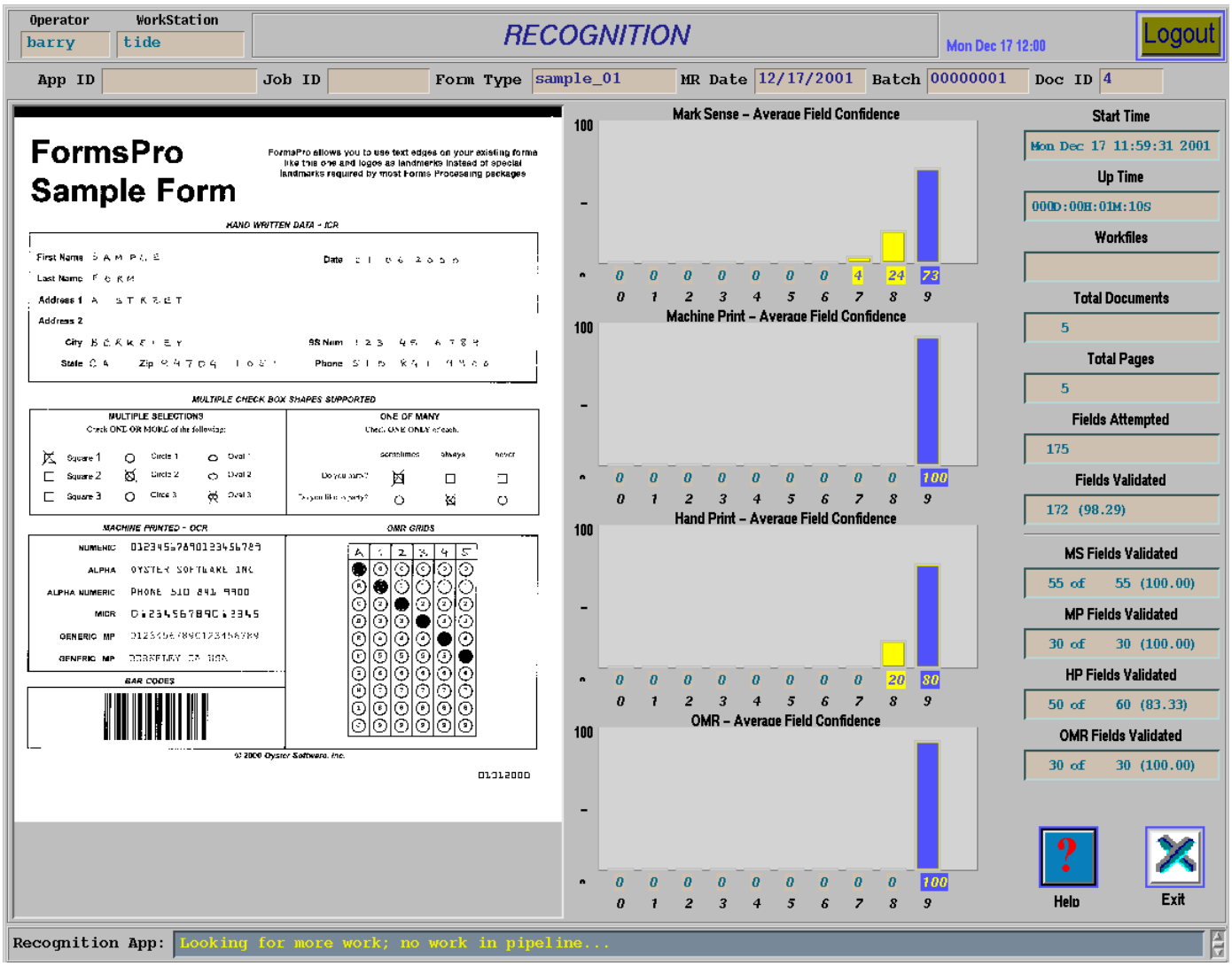
Recognition and Validation

After scanning, the images are processed by the Recognition application. Recognition occurs in two phases. First, **FormsPro** uses Intelligent Form Recognition (IFR) to identify the form and preprocess it. This includes analyzing the form to locate the landmarks, regions, and fields specified in the Form Definition function.



After form identification and preprocessing, the Recognition application validates the data by applying edit rules to determine if the read was successful. Data extracted from successfully read fields are passed to the data server and stored in the tables associated with the specific form and batch. For unrecognized fields and fields requiring manual verification/encoding, an image of the field (or **snippet**) is stored for subsequent processing.





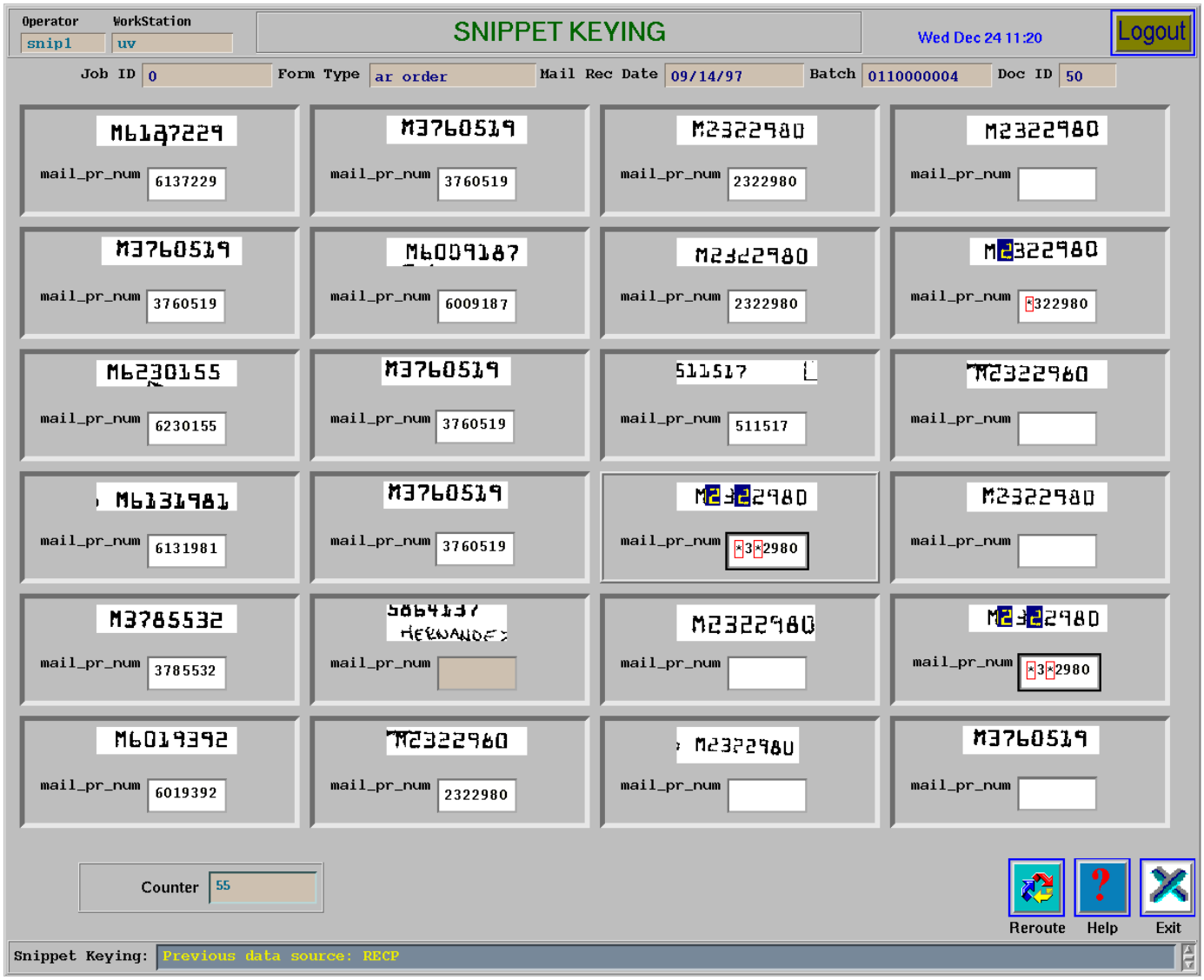
Snippet and Full Image Keying

Keying (or "Key from Image" data entry), allows the user to validate and correct information in two forms: by **snippet** and **full image**.

A **snippet** is an image of a field (or group of fields) that has been captured from the scanner. The user can specify a field for snippet keying through the Form Definition tool. Unrecognized fields are automatically routed to snippet keying.

Snippets may be grouped together by keying characteristics (numeric, zip codes, addresses, etc.) and distributed to keying workstations (see "Workflow Management" on page 6). To produce high keying entry rates, many similar field images are tiled together on a single screen.

Full Image Keying allows the user to view the entire scanned page. When keying full page images, the system automatically highlights the current data entry field for keying. This eliminates the need for users to navigate the image with the keyboard or mouse. This feature alone can save up to 25% in keying labor.



Workflow Management

FormsPro provides two types of workflow management: standard and Dynamic Workflow Leveling.

Standard workflow management, defined through the Form Definition function, determines the routing of work to different workstations and queues based on work priority. Work can be routed by type of application, form, field, and field value.

Dynamic Workflow Leveling allows users to monitor and balance the workload based on system statistics. Users reroute work by changing its priority in the Scan or Workflow application, thereby changing the processing priority of the work in the system.

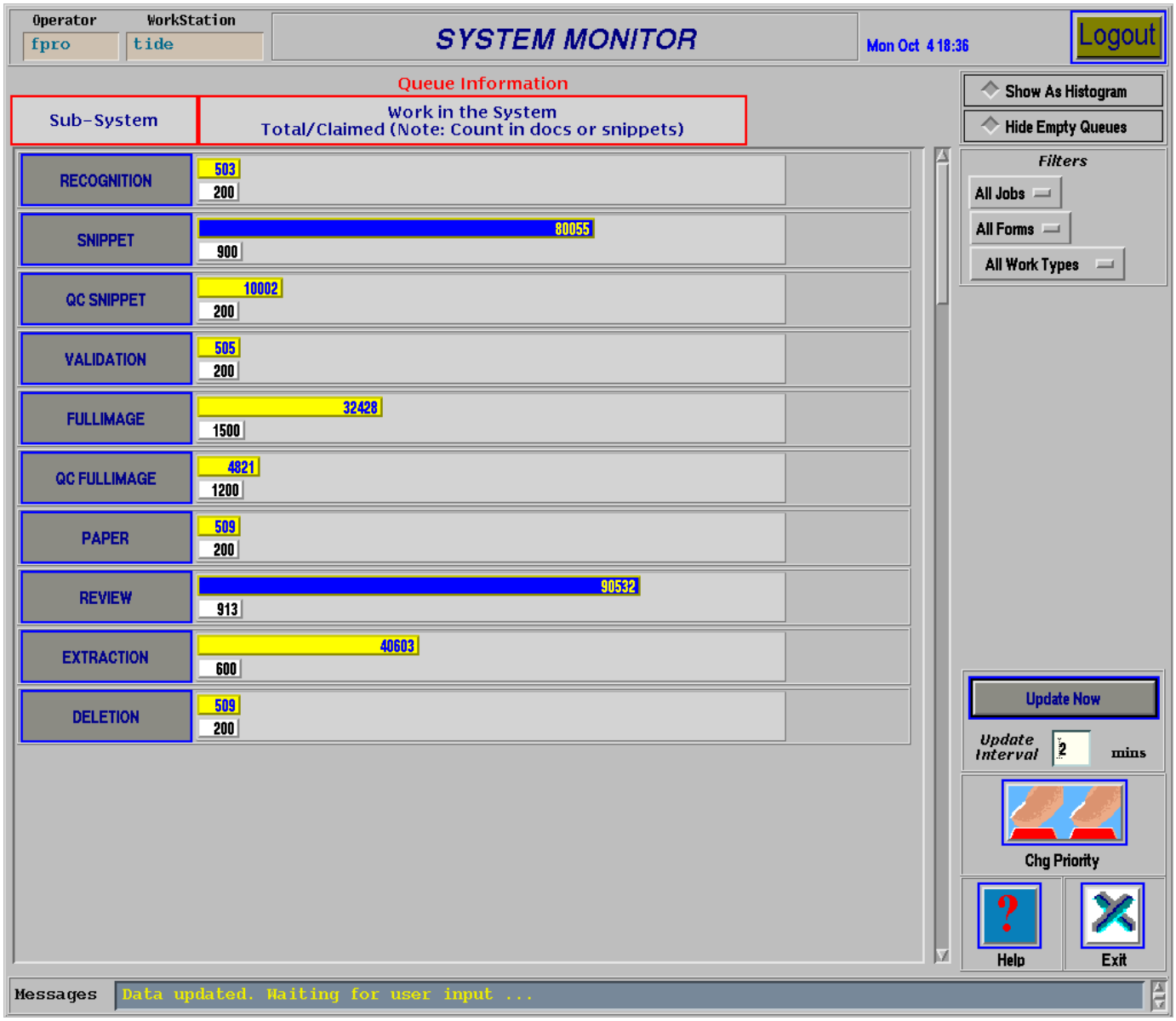
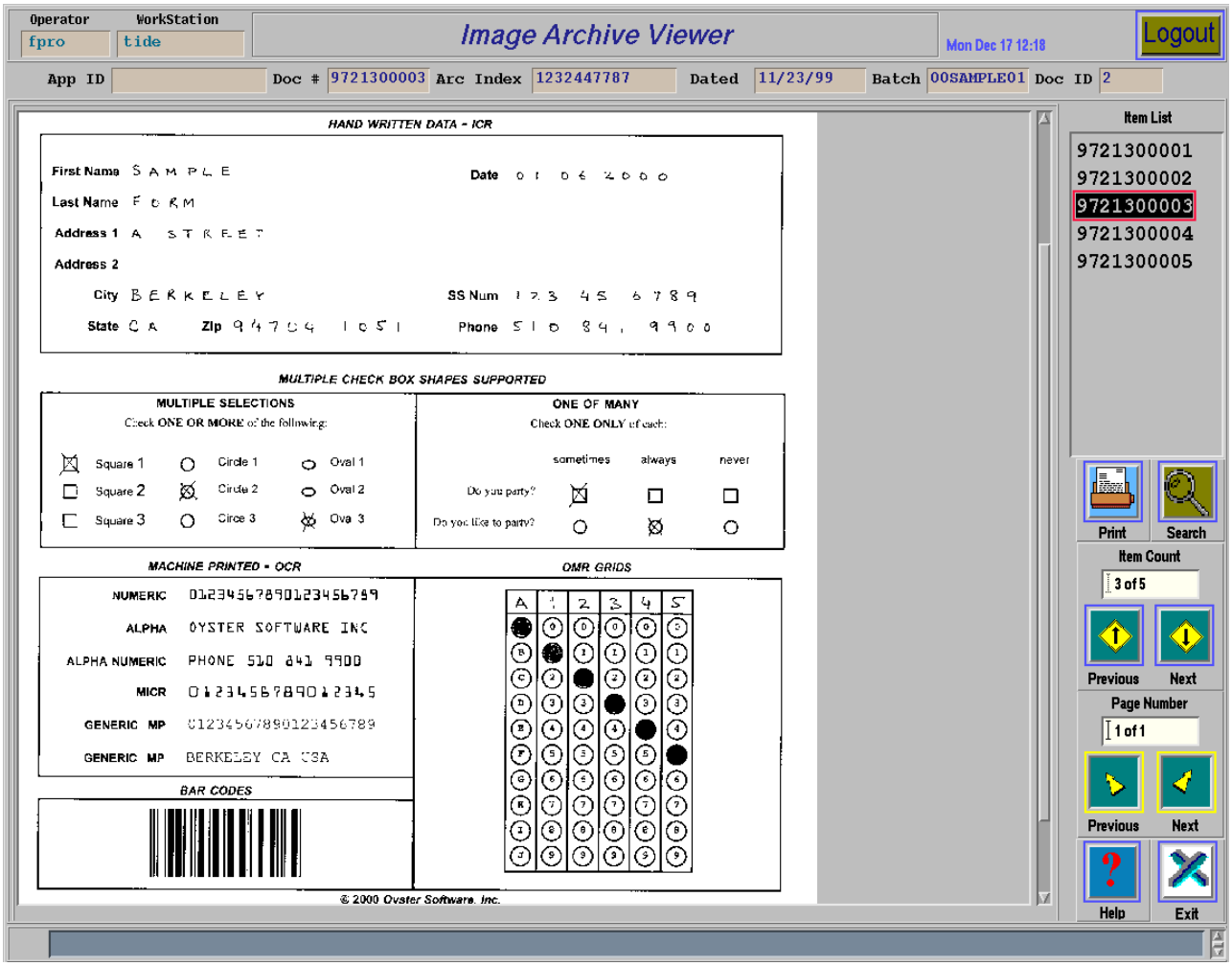


Image Archive

The Image Archive application stores images and keyed data for future retrieval. The user can configure the number of days to retain images following the data capture. Information is retrieved by batch number, documents ID, or captured field data e.g. a customer account number.



Signature Verification

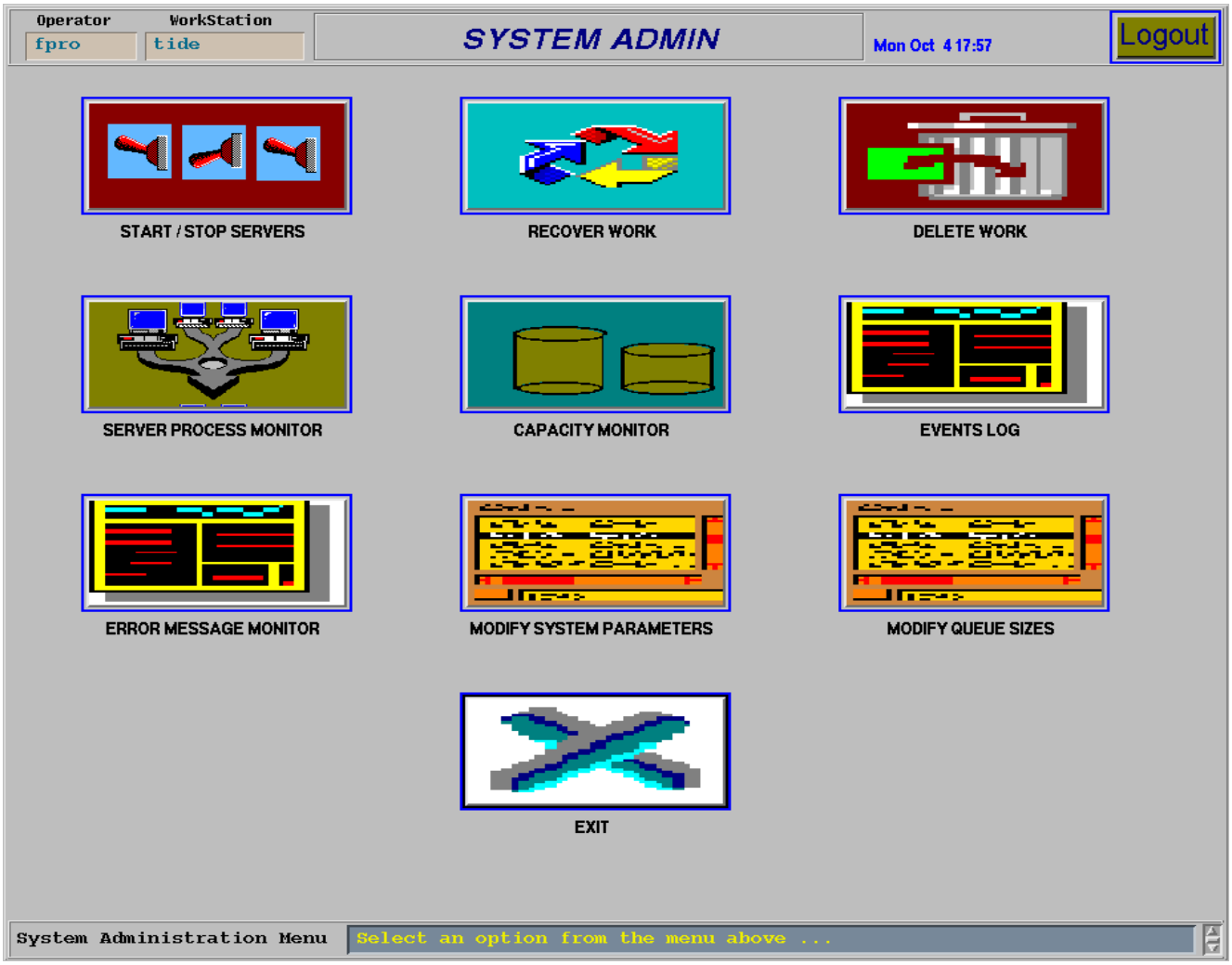
The Signature Verification function stores one or more reference images (snippets) of the customer's signature(s). As documents requiring signature verification come into the system the snippets of signatures from these documents are compared with bitmaps of the reference signatures. If the images are not similar enough they are routed to a reject queue or to a manual verification queue (similar to Snippet keying on page 5). The user can specify the threshold (confidence factor) required for accepting a signature.

System Administration

The Administration function provides three categories of administration: user, workstation, and system.

- **User Administration** - controls access to the different subsystems and queues by user Id.
- **Workstation Administration** - controls workstation usage by subsystem and background processes.
- **System Administration** - controls the systems ability to start and stop processes, recover work, modify queue size, and set system parameters

The Administration function also generates a variety of reports, including Operator Performance, Workload, System Throughput, and Recognition Rates.

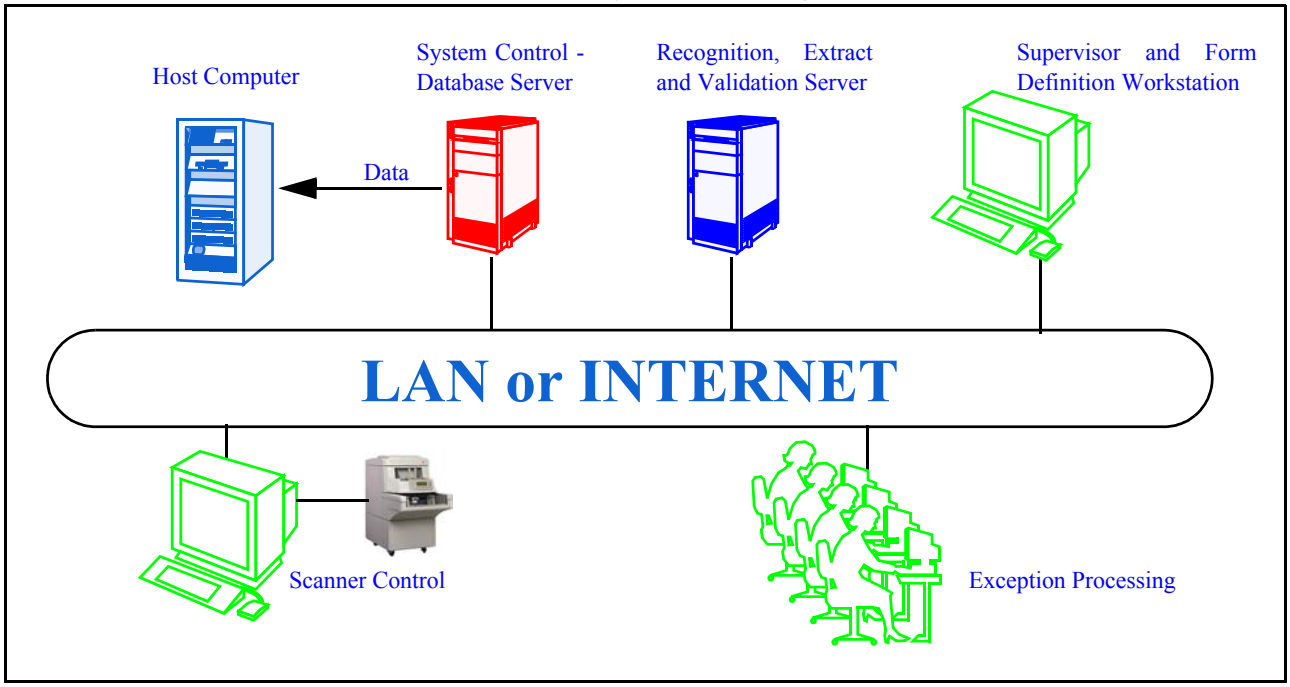


Hardware Requirements

FormsPro runs on a variety of hardware/Operating System configurations, including:

- Servers and Workstations - PCs running Microsoft Windows or Sun Solaris
- Terminals - including PCs running X, NCD, SUN, Tektronics, among others
- Scanners - including Kodak, Bell'n'Howell, Sharp, Ricoh, HP, Fujitsu, among others
- Recognition Classifiers - Calera, Mitek, NIST and Nestor Reader.
- Network - TCP/IP

FormsPro System Configuration



Flexibility in Hardware Configuration

In the diagram above an example configuration is shown, the actual hardware and software selection will depend on the volume and nature of documents per day, which the system needs to support. Since all FormsPro applications run as separate programs, the system can be setup to run all processes on one machine or to run one or more of the applications on separate machines giving the user full flexibility in terms of **scalability**. A starter system can run on one or two PC servers, and can be scaled to run on hundreds of servers and workstations. The system can also be configured to run in a mixed SUN Solaris and Microsoft Windows environment, on an Internal Network (LAN) or on the Internet for remote processing and access, giving the user the flexibility to mix and match existing hardware and remote resources.

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