

InService Job Card Generator accelerates maintenance planning and execution

Maintenance and engineering (M&E) systems generate work plans that describe the tasks, tools, and sequence of the required service, but do not include the detailed technical information necessary to execute the job. As a result, the process often relies on the planner and mechanic locating relevant technical documents for a particular piece of equipment. Often, prior to the start of service, someone will print the appropriate documents or cut-and-paste the proper tasks and organize them into a detailed set of maintenance instructions—a job card. Enigma InService Job Card Generator (JCG) significantly improves maintenance productivity by streamlining this process, thereby accelerating maintenance planning and execution.

Enigma InService JCG automates the production of job cards (task cards) containing all technical information required for the maintenance of aircraft, engines and other complex equipment. This product uses M&E planning information (i.e. tail number/serial number, fleet, skill, zone, hours, material) with the relevant technical content (i.e. AMM tasks/sub-tasks, service bulletins, diagrams and schematics) to generate a complete work package consisting of one or more job cards. InService JCG virtually eliminates manual intervention in the production of job cards, providing the latest and most relevant information to the mechanic within the context of the work package and formatted to the standards of the maintenance organization.

By utilizing Enigma's web-native, highly advanced, and proven technology, InService JCG can be easily integrated with content management systems, M&E systems, and maintenance business processes to provide a fully-integrated solution that accelerates the service and support of aircraft and other complex equipment.

Key features

- Dynamic rendition of a work package (consisting of a set of job cards)
- Effectivity filtering of the most up-to-date technical content based on tail number/serial number
- Merging of multiple datasets – planning information from the M&E system, technical information from the content management and product management systems
- Automatic validation and sequencing of technical information according to the M&E work package
- Rendering of job cards/work packages according to different rules/layouts
- Queue manager for prioritizing critical jobs, monitoring multiple job cards in a work package, and ensuring that all job cards associated with a work package are generated with the same technical content version
- Manual or automatic job card production (directly from M&E system)
- Ability to produce job cards centrally and distribute to remote users (electronic and/or printed job cards)
- Extraction of job card information (number of pages in the job card/work package, job card filenames, location) which can be sent to the M&E system
- Digital signature option
- Rapid implementation model based on a productized/configurable solution



IN SERVICE JOB CARD GENERATOR ENVIRONMENT

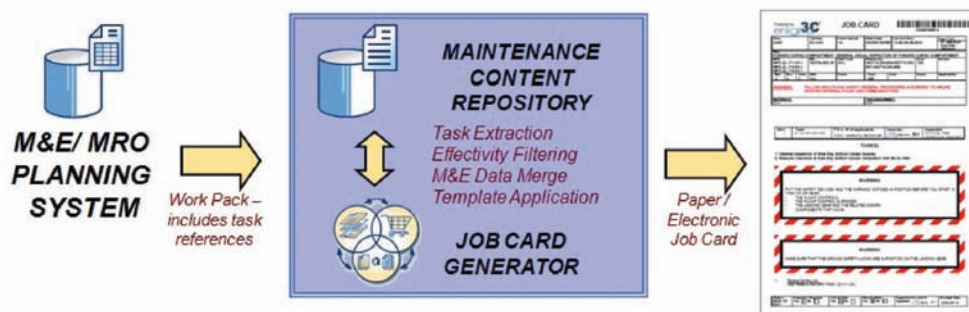
Job Card Process

The maintenance planner sends a request from the M&E system to generate a work package. The work package is then transformed into individual job card requests that are rendered by Enigma: InService JCG processes the planning information from the M&E system and identifies/validates the content necessary to complete each job card. All valid content is extracted from the repository and filtered according to tail number/serial number. The extracted content is sequenced and merged according to the planning information using the specified layout and rendered into one PDF file per job card.

The resulting PDF job cards can be printed and signed off, or used electronically with Enigma's Digital Signature module.

Summary:

InService Job Card Generator, through its single interface for M&E and technical content, benefits the entire maintenance organization, from the planners through to the mechanics.



PATH TO IMPLEMENTATION

Enigma InService Job Card Generator is an off-the-shelf product, therefore it can be implemented quickly, resulting in a fast ROI. A fully deployed job card solution, tailored to the specific requirements of a service department, can be implemented in less than 16 weeks.

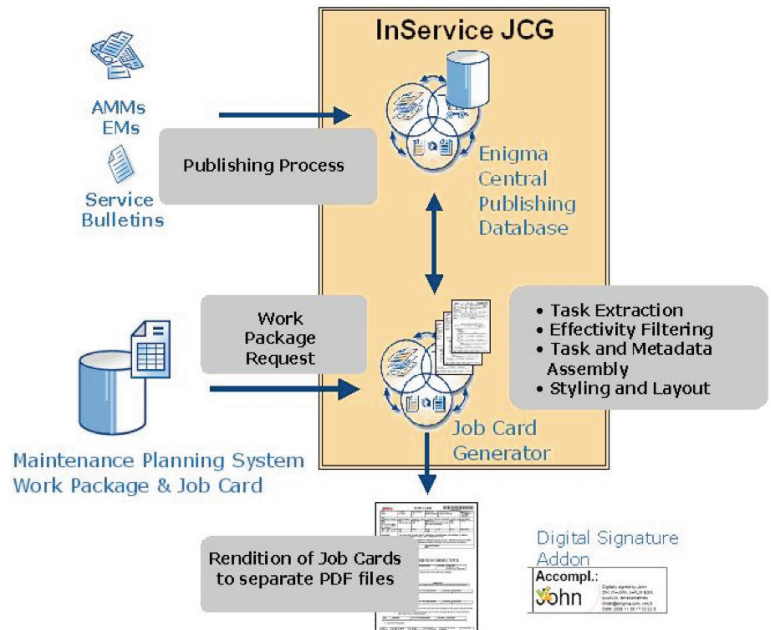
The following environments are delivered as part of the standard product:

- **Data load environment, consisting of a single publishing server**
- **Job card generation environment, consisting of a single installation**

The standard delivered product supports three aircraft models (or similar equipment) and up to three manuals for each model. The product can support as many additional models and manuals as required.

Services provided by Enigma to configure InService JCG to a company's business requirements include:

- On-site kick-off session – to review technical content data parameters and implementation requirements
- Data processing – including set-up of the data load and job card environment, production of manuals for each model and testing
- Print and documentation customizations – comprising specification of logos, front page fields, style sheets, and publishing/administrator guide
- On-site installation – deployment of InService JCG
- On-site training for the administrator
- Project management activities



INCREASE MAINTENANCE PRODUCTIVITY

Enigma InService Job Card Generator increases maintenance productivity and equipment availability by using a single automated process to provide the relevant service procedures, technical updates, service bulletins and associated images at the fingertips of technicians and mechanics.

IMPROVE COMPLIANCE

Enigma InService Job Card Generator improves compliance with established maintenance practices and regulatory mandates, by delivering a complete, configuration-specific set of service information that virtually eliminates errors related to out-of-date or inaccurate documentation.

REMOVE PAPER, PRESERVE AUDIT TRAILS

The optional Digital Signature module can enhance InService Job Card Generator by enabling electronic completion of job cards with checkboxes, comment boxes and digital signature fields for mechanics and supervisors. In addition, job cards can be integrated with workflows to support electronic sign-offs and the creation of an audit trail for regulatory and corporate compliance.

DEPLOYING INSERVICE JCG

Enigma InService JCG is specifically designed for fast implementation and deployment—often in less than 16 weeks. It comes pre-packaged with standard ATA job card style sheets that are easy to configure to meet your specific requirements. Alignment with your existing business processes ensures quick and smooth user adoption.

The modern, standards-based architecture of InService JCG makes integration straightforward with M&E/MRO planning solutions, as well as content management, product management, ERP or other systems. There is no additional software needed and no changes to current business processes are required to fully leverage the power and flexibility of InService Job Card Generator.

Data interchange between systems takes place in Enigma's predefined XML format. Integration can be:

- **Unidirectional, where the M&E planning system “pushes” the work pack data to InService JCG**
- **Bidirectional, which enables InService JCG to push job data back to the planning system**

Bidirectional integration helps to support ongoing maintenance planning, streamlines audits and compliance processes, and provides information on current maintenance status. It also supports improved configuration management through faster, more accurate tracking of data on new/changed parts. This optional level of automation can be implemented at any point.

EXTENDING INSERVICE JCG

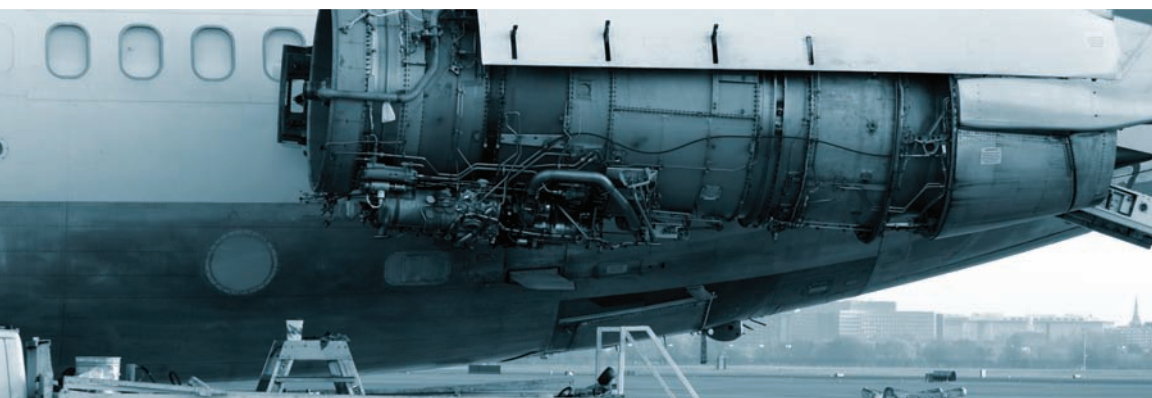
Based on the proven Enigma 3C® platform, InService Job Card Generator is an enterprise class, fully scalable and upgradeable solution, making it straightforward to add new fleets or additional types of manuals—even adding documentation for an entire airline.

Enigma InService JCG builds a strong foundation for a maintenance organization, by employing a J2EE web-native architecture that fits easily within an existing IT infrastructure.

This open and highly flexible architecture is vendor/system neutral. Should a decision be made to upgrade or replace the M&E planning system, add new content management capabilities, or otherwise enhance business processes in any way, the capabilities of InService JCG will be retained.

Enigma InService JCG supports future expansion and scalability plans through the implementation of one or more of Enigma's other products:

- **Digital Signature Module, providing a fully electronic job card solution**
- **InService MRO, providing easy and intuitive access to all service manual, assembly and component information, troubleshooting procedures and part requisitions for engineers, planners and technicians**
- **Revision Manager, automating the process of identifying and tracking changes between old and new content revisions (often a laborious and manual task)**



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