



**THE CUSTOMS & EXCISE DEPARTMENT
THE GOVERNMENT OF
THE HONG KONG SPECIAL ADMINISTRATIVE REGION**

**ROAD CARGO SYSTEM (ROCARS)
SERVICES CHANNEL SELECTION GUIDE
FOR SHIPPERS AND AGENTS**

[RT03]

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1. PURPOSE

The purpose of this document is to provide the guidelines for the shippers and agents to select a suitable service channel for using the Road Cargo System (ROCARS) of the Customs and Excise Department (C&ED) from the three ROCARS service channels namely (i) Direct Input Portal, (ii) Batch Upload Portal and (iii) System-to-System Interface.

This document elaborates on the characteristics of the service channels in detail to facilitate the shippers and agents to select the service channel. Nevertheless, a company should include other factors such as costs into consideration in selecting the service channel that most suitable for its business.

2. REFERENCES

2.1. Standards

- Implementation Instructions of the Road Cargo System (ROCARS) System-to-System Interface for Bulk Submission [RT01] .
- Guidelines for Setting Up the System-to-System Interface for Exchanging Data with the Road Cargo System (ROCARS) [RT02] .
- XML File Specification for Uploading Data for Batch Upload Portal with the Road Cargo System (ROCARS) [RT04] .

2.2. Other References

- Usage of the Digi-Sign digital certificate (ID-Cert)
<http://www.dg-sign.com/>
- Usage of the Hong Kong Post digital certificate (e-Cert)
<http://www.hongkongpost.gov.hk/product/ecert/guide/FileCard/index.html>
- Support information of the OpenOffice software package
<http://www.openoffice.org/support/index.html>
- Download of the OpenOffice software package
<http://www.openoffice.org/download/index.html>

3. DEFINITIONS AND CONVENTIONS

3.1. Definitions

None.

3.2. Conventions

The following acronyms are used in the text of this guide:

C&ED	Customs & Excise Department
CCRN	Customs Cargo Reference Number
ebMS Gateway	Server equips with processing capability compliance with ebXML Messaging Service
ebXML	Electronic Business using eXtensible Markup Language
HTTPS	Hypertext Transfer Protocol Secure

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Implementation Instructions	Implementation Instructions of the Road Cargo System (ROCARS) System-to-System Interface for Bulk Submission (ROCARS Technical Document Reference: RT01)
IT	Information Technology
LBCP(s)	Land Boundary Control Point(s)
MSH	Message Service Handler
PC	Personal Computer
SSL	Secured Socket Layer
UBR	Unique Bundling Reference
XML	eXtensible Markup Language
XML File Specification	XML File Specification for Uploading Data for Batch Upload Portal with the Road Cargo System (ROCARS) (ROCARS Technical Document Reference: RT04)

4. OVERVIEW

ROCARS provides a highly secure, stable and reliable electronic customs clearance infrastructure with user-friendly interfaces for shippers and agents to submit advance road cargo information to C&ED; and for truck drivers and agents to submit vehicle / CCRN information to C&ED for efficient clearance of road cargoes round-the-clock.

There are three (3) service channels (user interfaces) provided by ROCARS for shippers and agents to submit road cargo information to the C&ED and conduct subsequent amendment and deletion if necessary. They are:

- Direct Input Portal
- Batch Upload Portal
- System-to-System Interface

All the service channels have been designed with the user friendliness in mind. For protecting and securing the cargo information being submitted, up-to-date security protection measures will also be in place. Some characteristics of the service channels are elaborated on in Section 5 below to help the shippers and agents to select the appropriate ROCARS service channel.

The last section of this paper provides a summary of the hints for the users to consider.

5. THE SERVICE CHANNELS

Each of the three service channels provided by the ROCARS is discussed in this section in four areas namely:

- Mode of Operation
- Performance Consideration
- IT Requirements
- Recommended Practices

The 'Mode of Operation' elaborates on the way how the user uses the service channel.

The 'Performance Consideration' elaborates on the performance issue of the service channel.

The 'IT Requirements' section states the hardware & software requirement of the service channel.

The 'Recommended Practices' section highlights the required IT skill and best practices for using the service channel effectively and efficiently.

5.1. Direct Input Portal

5.1.1. Mode of Operation

The Direct Input Portal provides an interface through the Internet for the shippers and agents to perform the on-line ROCARS functions including entering the required data, saving the data, preparing data template, signing the data with digital certificates, submitting the signed data to the Government and receiving CCRNs. Agents are also able to performing bundling / de-bundling with CCRNs and vehicle registration numbers, and receiving UBRs.

The Direct Input Portal is designed to facilitate shippers and agents to on-line input cargo / bundling information with a web browser installed on a PC with Internet access.

After logging in the ROCARS Portal, shippers and agents can follow the instructions on the screen to perform the required ROCARS functions. User can key in the cargo / bundling information directly and the ROCARS will provide responses interactively. On-line validation will be provided to assist the users to verify the input data.

5.1.2. Performance Consideration

As the user is required to enter the data interactively in the Portal, the performance depends very much on how fast the user can key in the data and ensure the correctness of the data for submission. Under normal condition, it is expected that a user will take about 1 minute to complete the entering of data, signing and submitting the cargo data, and getting the CCRN back for a consignment with one goods item.

5.1.3. IT Requirements

Please refer to the ROCARS Portal (<https://www.rocars.gov.hk/en/FAQs.html#G3>) for the hardware and software requirements for using the Direct Input Portal.

5.1.4. Recommended Practices

Users with basic knowledge on PC and Internet operation will be able to perform the functions through this Direct Input Portal. There is no or very little IT investment required for using this service channel. Therefore, this channel is suitable for shippers and agents that use IT sparingly for their business and have no plan to expand the IT investment in the near future.

Shippers and agents handling import / export of cargoes infrequently, or at a low volume will be benefited most by taking this approach.

5.2. Batch Upload Portal

5.2.1. Mode of Operation

The Batch Upload Portal is an extension of the Direct Input Portal with additional functions that allow the users to prepare the cargo information off-line and to upload it to the Portal by batch. All the on-line functions of the Direct Input Portal remain intact.

Shippers and agents can prepare a data file of cargo information, without accessing to the ROCARS Portal, in XML format according to the XML File Specification provided by C&ED. Users can prepare the XML data file in many ways, for example:

- Using tools such as a plain text editor or XML file editor /generator;
- Using the OpenOffice / Excel template provided by the C&ED; or
- Extracting and converting cargo information from their own IT system.

Once the XML data file is ready, the shippers and agents can log in the ROCARS Portal with a web browser installed on a PC with Internet access to upload the file to ROCARS. The user can manipulate the uploaded consignment information in the same way as that in the Direct Input Portal. The user can amend the data, save the data, sign the data with digital certificates, submit the data to the Government and receive the corresponding CCRNs.

5.2.2. Performance Consideration

As the user is allowed to prepare a batch of the cargo information in off-line mode for uploading to the ROCARS Portal, the performance of this approach depends very much on the way that the user takes to create the batch file. If every consignment data is required to key in once, the time taken for the user to prepare the submission will be similar to that of using the Direct Input Portal, i.e. about 1 minute for a consignment.

If much of the consignment data is similar to each other, the user may use some copy-and-paste tools to reduce the data keying effort.

If the user already stored the consignment data in his / her own IT system, by developing an extraction tool to automatically extract and convert the consignment data from the IT system, the time to create the XML data file of consignment information for uploading will be much reduced.

It should be noted that if the size of the batch file is large, it may introduce bottleneck for ROCARS to process the large amount of data.

5.2.3. IT Requirements

Please refer to the ROCARS Portal (<https://www.rocars.gov.hk/en/FAQs.html#G3>) for the hardware and software requirements for using the Batch Upload Portal.

Software tool for the preparation of the XML data file, for example:

- A plain text editor or XML file editor / generator which the shipper or agent is capable to use it to create the XML data file in accordance with the XML File Specification provided by the C&ED;
- The OpenOffice template or Excel template provided at ROCARS Portal (https://www.rocars.gov.hk/en/batch_template.html); or
- Tools to extract and format the cargo information data from the user's own IT system.

5.2.4. Recommended Practices

Users using this Batch Upload Portal are required to have basic knowledge on PC and Internet operation as that for using the Direct Input Portal.

For users using the ROCARS-provided templates, they are required to have basic knowledge in using office automation spreadsheet software for cargo data input. Depending on the IT establishment of the users, no or a little IT investment is required.

For users using their own tools, they should have the knowledge of understanding the XML File Specification and using their own tools.

For users extracting data from their own IT systems to generate the XML data file, moderate IT support establishment are required for developing the extraction programs and maintaining the smooth operation the IT systems.

Shippers and agents that need to handle medium volume of ROCARS transactions and want to minimize the Internet resources for preparing the consignment information through the ROCARS Portal will be benefited most by taking this approach.

5.3. System-to-System Interface

5.3.1. Mode of Operation

The System-to-System Interface enables a fully automated channel for the shippers and agents to submit the cargo data to the Government and to receive the CCRNs. Agents can perform the bundling / de-bundling functions, and to receive the UBRs through this interface too.

The structure and format of the data being exchanged between the users and the Government must follow the Implementation Instructions. Shippers and agents should develop their own IT systems or enhance their existing IT systems for communicating with ROCARS under this channel. They should also have the ebMS Gateway for exchanging XML messages with the ebMS Gateway of ROCARS.

Connections between the ebMS Gateway of the IT systems of the shippers / agents and the ebMS Gateway of ROCARS can be either through dedicated communication lines or the Internet. For connection by dedicated communication lines, users shall be responsible for all the costs incurred for establishing the communication lines including that for the Government ends.

Users interested in using this service channel should first contact C&ED to register their interest. C&ED will provide further guidance and support for setting up the Interface. After developed or enhanced their own IT systems (including hardware, software, application and networking) for the Interface, users are required to perform the joint testing with the Government to confirm the compliance of the Interface with the Implementation Instructions. Thereafter, submissions and processing of cargo / bundling information as required by ROCARS can be done automatically through this service channel.

5.3.2. Performance Consideration

With the System-to-System Interface, exchanging ROCARS data with the Government will be automated.

Depending on the capacity of the systems and networks involved, it is expected that, normally, hundreds of consignments can be processed through the Interface within a few minutes.

Connection through the Internet may introduce communication bottleneck if the transaction volume is very high. On the other hand, connection through dedicated communication lines will be scalable to handle various transaction volume needs as the performance of the dedicated communication lines shall be guaranteed by the communication services provider and solely consumed by the dedicated user.

5.3.3. IT Requirements

Users should have IT systems with the following characteristics for establishing the system-to-system interface:

- The required ROCARS data are stored in the IT system.
- The required application functions for creation and processing of the XML messages of cargo / bundling information can be integrated into the IT system.
- The IT system should have an ebMS Message Service Handler (MSH) with HTTPS protection and digital certificate signing capability to act as the messaging gateway for communicating with ROCARS. List of ebMS software packages can be found in Section 2.2 for reference.
- There should be network connection between user's IT system and the ROCARS through the Internet or dedicated communication links with appropriate bandwidth.

5.3.4. Recommended Practices

Shippers and agents should have strong IT establishment and capability to develop, enhance and maintain the corresponding IT system for adopting the System-to-System Interface.

Shippers and agents that require to handle high volume of import / export of cargoes frequently and to use IT extensively in the day-to-day operation will be benefited most from taking this approach.

6. SUMMARY OF THE HINTS FOR CONSIDERATION

The following table summarizes the characteristics of the ROCARS service channels discussed in this paper. To select a suitable ROCARS channel, a user should first assess his/her business needs/plan in the areas of manual operation dependency, Internet dependency, IT profile, IT investment and workload to be handled. Then, a user could match the assessment results against the factors in the following table. The service channel that matched the needs/plan most should be a suitable one. It should be noted that the discussion here serves only as a reference and the factors mentioned in this paper are by no means exhaustive. Users should take other factors relevant to their business into consideration before making the final decision.

	Portal for Direct Input	Portal for Batch Upload		System-to-System Interface	
		Using ROCARS templates or user's own XML tools to create the XML file manually	Develop tools to extract & create the XML data file from user's own IT system	Through the Internet	Through dedicated communication lines
Dependency on Manual Operation	High	High	Medium	Low	Low
Dependency on the Internet	Yes	Yes	Yes	Yes	No
Integration opportunity with User's IT System	Low	Low	Medium	High	High
IT Skill Level Requirement	Low	Low	Medium	High	High
IT Investment Requirement	Low	Low	Medium	High	High
Target System Workload	Low to Medium	Low to Medium	Low to Medium	Medium to High	High
Other operation considerations	Quick solution without additional IT investment.	Quick solution with minimized Internet resources usage.	Quick solution leveraging on the data in the user's IT System.	Fully automated solution with minimal network cost.	Fully automated solution and scalable system throughput to meet business needs.

- END -