



ELECTRONIC PERSONNEL LICENCE (EPL) Interim solution for implementation and verification

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International Civil Aviation Organization

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Introduction

The electronic personnel licence (EPL) adopted in Annex 1 – *Personnel Licensing* for civil aviation is a first step towards the digitalization of personnel licences. While some Contracting States have developed their own EPL system, the EPL Implementation Task Force (EPLI-TF) was tasked to develop guidance and tools to support the early implementation of a harmonized verification system and look at possible ways for the evolution of verification systems that can maintain a high level of standardization and interoperability.

Future EPL verification systems will likely be based on standards such as the ISO/IEC 18013-5:2021 Standard. However, extensive research and development efforts are required before a final decision can be taken in that regard. The Personnel Training and Licensing Panel (PTLP) will take over this work from the EPLI-TF.

The interim verification solution will enable EPL-ready States (i.e., States that have implemented an EPL) to meet the EPL verification requirements established in amendment 178 to Annex I – *Personnel Licensing*. This interim verification solution for EPL is composed of three components:

- a) online automated verification;
- b) online manual verification; and,
- c) offline visual verification.

This document provides information for all States on the components to verify an EPL during an inspection so that the verification process may occur without undue burden on the verifying State.

1. EPL verification solution description

1.0.1 The EPL verification solution has offline and online components as required by the Standard in Annex 1.

1.0.2 Online verification components are composed of:

a) an automated query scanning a QR code: This verification method allows an inspector to view, via an ICAO server, the related EPL data provided by the Licensing Authority to inspect and confirm that the presented EPL is valid.

b) a manual query on the EPL ICAO website: The alternative online verification method of an EPL is to visit the [Manual ICAO EPL website](#) and enter a minimum set of information of the inspected EPL to query the Licensing Authority database, via an ICAO server, and verify that the presented EPL is identical and valid.

The ICAO server is part of the icao.int domain and is further referenced as “ICAO server” in the rest of this document.

In both cases above the exchange of information is between the ICAO server and the Licensing Authority server. An application programming interface (API) is used to enable this information exchange in a standardized and secure manner.

1.0.3 The offline component is a visual verification process using an EPL verification job aid used if online verification is unavailable (e.g. connectivity issues). The visual verification process is explained in Section 1.4.

1.1 Automated query verification using a QR code



Figure 1: Online Automated Verification

The following steps describe the verification process using the automated query depicted in Figure 1:

- STEP 1 - The EPL holder is provided with an EPL issued by the Licensing Authority. As required by the Annex 1 Standard, the EPL must contain a machine-readable code. A two dimensional- readable code (QR code) compliant with ISO 18004 Standard is used and has the following specifications:
 - It points to an ICAO uniform resource locator (URL);
 - It contains:
 - a) the State code for the Licensing Authority; and
 - b) an encrypted token generated dynamically by the EPL.
- STEP 2 – The Inspector scans the QR code generated by the EPL holder’s application.
- STEP 3 – The Inspector’s device sends the information contained in the QR code to ICAO.
- STEP 4 – The ICAO server triggers a query on the Licensing Authority server.
- STEP 5 and 6 – The Licensing Authority server returns the required EPL data elements to ICAO which then displays them on the Inspector’s device.

1.2 Manual query via the EPL ICAO website

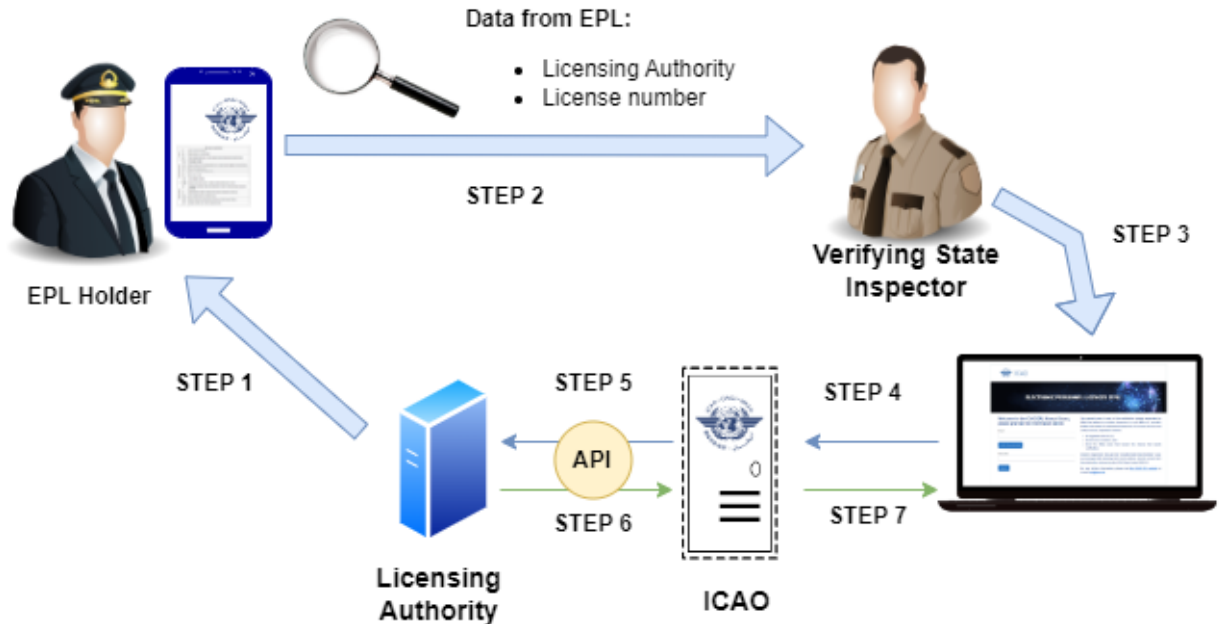


Figure 2: Online Manual Verification

1.2.1 The following steps describe the manual query verification process depicted in Figure 2:

- STEP 1 – The EPL holder is provided with an EPL issued by the Licensing Authority. As required by the Annex 1 Standard, the EPL must contain a serial number of the licence given by the authority issuing the licence.
- STEP 2 – The EPL holder presents the EPL so that the Inspector can note the licensing authority and the serial number of the licence.
- STEP 3 – The Inspector must perform the following sub steps:

- Go to the [Manual ICAO EPL query website](#).
- Click on “HERE” hyperlink to be redirected to the manual query page.

Please click **HERE** to access the ICAO EPL manual query.

- Enter her/his registered email and click on “Send me passcode” button.

Welcome to the ICAO EPL Manual Query,
please provide the information below

Email

Send me passcode

- Check her/his email inbox for an email sent by noreply@icao.int containing the passcode.
- Type in the passcode in the corresponding box and click on the “Sign in” button.

Passcode

Sign in

- The Inspector has now a five-minute window to query licences. The inspector will be automatically signed out from manual query after five minutes.
- The Inspector needs to type in the license number and the select the State that issued the license and then click on “Submit”.

04:50 Sign out

Welcome to the ICAO EPL
Verification Tool Manual Query Form

Licence Number: Please select a State [CAAC JOB AID](#)

.End.

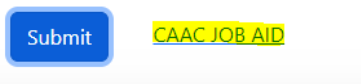
- STEP 4 – The information provided by the Inspector are collected by the ICAO server.
- STEP 5 – The ICAO server queries the applicable Licensing Authority server via an API with the licence number.
- STEP 6 – The licensing Authority server sends the information from its EPL database back to the ICAO server via an API.

- STEP 7 – The manual query application webpage displays the licence data elements. The Inspector can verify the validity of the EPL.

1.2.2 The following time limits are embedded in the manual query to prevent extraction of data from a licensing authority database:

- a) There is 15 seconds interval for the Inspector to resend the request for a passcode in case she/he cannot find the previous passcode.
- b) The Inspector has a 5-minute window to query licences once he/she signs in, and the inspector will be automatically signed out from the manual query after 5 minutes.

1.2.3 The manual query webpage also provides an access to the offline EPL verification Job Aids.



1.2.4 If an inspector cannot authenticate to access the manual query application, she/he has to advise her/his organization by referring to State Letter 2022/115.

1.2.5 The data provided in the manual query is composed of the items of the ICAO common form of Appendix 4 to Annex 1, in relation with the requirements of ICAO Doc 8335 - *Manual of Procedures for Operations Inspection, Certification and Continued Surveillance*, marked by an “X” in the following tables. The tables here under specify which data elements are filtered or de-identified.

1.2.5.1 General

Electronic personnel licence			Unrestricted	Restricted	Remark
General	I	Name of State (in bold type);	X		
	II	Title of licence (in very bold type);	X		
	III	Serial number of the licence, in Arabic numerals, given by the authority issuing the licence;	X		

1.2.5.2 Personnel information

Electronic personnel licence			Unrestricted	Restricted	Remark
Personnel information	IVa	Photograph of holder;	X		
	IVb	Name of holder in full (in Roman alphabet also if script of national language is other than Roman);	X		
	IVc	Date of birth (yyyy);		X	Provide only the year of the date
	VI	Nationality of holder;	X		

1.2.5.3 Issuing Authority

Electronic personnel licence			Unrestricted	Restricted	Remark
Issuing Authority	VIII	Authority and, where necessary, conditions under which the licence is issued;	X		
	IX	Certification concerning validity and authorization for holder to exercise privileges appropriate to the licence;	X		
	XIb	Date and time of last synchronization with the server of the Licensing Authority;	X		

1.2.5.4 Ratings

Electronic personnel licence			Unrestricted	Restricted	Remark
Ratings	XII	Ratings, e.g. category, class, type of aircraft, airframe, aerodrome control, etc.;		X	Check mark only - Returns only if the rating(s) is(are) still valid when compared with the date of the query.

1.2.5.5 Remarks

Electronic personnel licence			Unrestricted	Restricted	Remark
Remarks	XIII	Remarks, i.e. special endorsements relating to limitations and endorsements for privileges, including an endorsement of language proficiency, and other information required in pursuance to Article 39 of the Chicago Convention;	X		
	XIV	Any other details desired by the State issuing the licence;	X		

1.2.5.6 Medical Assessment

Electronic personnel licence			Unrestricted	Restricted	Remark
Medical Assessment	XVa	Class (1, 2 or 3);	X		
	XVb	Expiry date;		X	Check mark only - Returns only if the medical certificate is still valid when compared with the date of the query.
	XVc	Special medical limitations ² , if any;	X		
	XVd	Other information associated with the medical assessment as determined by the Medical Authority;	X		

1.2.5.7 Additional Supplementary Information

Electronic personnel licence			Unrestricted	Restricted	Remark
Additional Supplementary Information	XVIa	Other information associated with the licence as determined by the Licensing Authority;	X		
	XVIb	Other information associated with the licence as determined by the Licensing Authority;	X		
	XVIc	Other information associated with the licence as determined by the Licensing Authority.	X		

1.3 API, data model and QR code requirements

1.3.1 API specifications

1.3.1.1 API specifications vary constantly. States that have an EPL system and want to participate in this and future harmonized verification systems should contact ICAO and participate in the relevant working groups.

1.3.1.2 The interim verification system has limited capacity. ICAO is working with interested States to establish a system that can support all Member States.

1.3.2 Data model

1.3.2.1 The EPL data transiting on the network using the API conforms to a JSON (java simple object notation) structure as agreed by ICAO and the EPL-ready States.

1.3.3 QR code

1.3.3.1 The QR code dynamically generated by the EPL application of the EPL holder's device meets the requirements as agreed by ICAO and the EPL-ready States.

1.4 Visual Inspection on EPL holder's device

1.4.1 Introduction

1.4.1.1 Visual inspection provides an offline verification method mimicking the current inspection processes employed when verifying a hardcopy licence. The inspector inspects the EPL's data elements to ensure their completeness and may perform additional verification through methods already in use, such as consulting a Licensing Authority for additional information via its website or via any suitable telecommunication means. As a measure to help confirm that the EPL is genuine, it is recommended that the inspector views the EPL holder opening the EPL application, confirms the display of a non-static image, and any other features described in the job aid. To avoid liability, the inspector should not handle the EPL holder's mobile device.

1.4.1.2 An EPL does not override the obligations to carry additional information needed for a ramp inspection as required under ICAO document 8335 - *Manual of Procedures for Operations Inspection, Certification and Continued Surveillance* and a government-issued identification document or similar as required by Annex 9 - Facilitation.

1.4.2 Implementation guidelines

1.4.2.1 Each Licensing Authority has the freedom to implement any additional security features, such as static or dynamic differentiations, to their EPL as deemed necessary depending on their operational context.

1.4.2.2 States that issue EPLs need to provide other States additional information regarding their particular EPL solution to aid with the visual inspection by foreign inspectors. ICAO developed a standard EPL verification job aid template to facilitate this exchange of information. Licensing Authorities from EPL-ready States have provided completed job aids describing the features of their EPLs. These job aids are published on the ICAO-NET website and the manual query module website ([ICAO EPL website](#)).

1.4.2.3 While preparing a ramp inspection (see Figure 3), it is advisable that the inspector consults the relevant EPL verification job aids of the Issuing States that are likely to be verified during ramp inspections at a defined airport. The visual comparison would then consist in the verification of:

- a) the EPL holder ID document versus name, surname and date of birth published on the EPL;
- b) some of the EPL features as described in the corresponding EPL verification job aid.

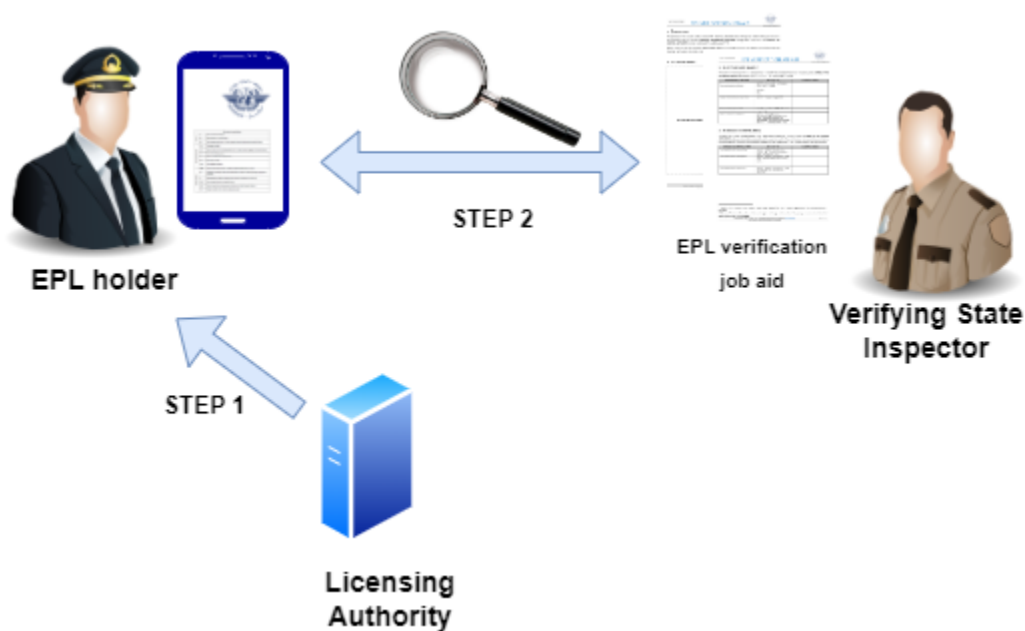


Figure 3: Visual Inspection

1.4.2.4 After having confirmed that the presented EPL is compliant with the Licensing Authority's specific job aid, the inspector can then perform a verification of the published privileges and ratings as the inspector would do while verifying a hard copy licence.

1.4.3 EPL verification job aids

1.4.3.1 EPL verification job aids are based on the template of Appendix A. Any job aid published on an ICAO website is reviewed for conformity with the Annex 1 SARPs by the ICAO Secretariat. For more information on **the job aids** or to obtain the latest version of the job aid template please contact ICAO at epl@icao.int.

1.4.3.2 ICAO will publish the job aids of EPLs meeting the standard on the [ICAO-NET secure portal](#) and also accessible to inspectors via the [manual query module](#).

Appendix A – EPL Verification Job Aid

MY CAA LOGO

EPL VERIFICATION JOB AID



Version date: DD-MMM-YYYY

1. INTRODUCTION

The purpose of this job aid card is to provide the necessary information to the inspector while verifying an Electronic Personnel Licence (EPL) issued by **NAME OF THE ISSUING AUTHORITY** during a ramp inspection. The **NAME OF THE ISSUING AUTHORITY** started to deploy EPLs on DD-MMM-YYYY.

Please make sure you are using the latest version of this document. The latest version of this EPL verification Job Aid Card can be found on the ICAO website www.ICAO.int/EPL.

2. EPL GENERAL LAYOUT

EPL IMAGE TO BE INSERTED HERE	EPL IMAGE TO BE INSERTED HERE
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3. EPL STATIC SECURITY FEATURES¹

The table here under provides a description of the most relevant static features of an EPL issued by *NAME OF THE LICENSING AUTHORITY* helping an inspector to assess the authenticity of an EPL.

STATIC SECURITY FEATURES	DESCRIPTION	EXAMPLE - IMAGE
Licence number standard format	<i>Example: Licence number is composed as follow : BE.FCL.A.158586</i> <i>Font type:</i> <i>Size:</i> <i>Color:</i>	
Licensing Authority logo characteristics	<i>Example: The logo is composed of...</i>	
Background logo/picture/color	<i>Example: The background of the licence is composed of...</i>	
Date of the last synchronization	<i>Example: The date of the last synchronization of the EPL data with the Licensing Authority server is available on... The EPL data is required to be synchronized every xxx as per Licensing Authority policy.</i>	

4. EPL DYNAMIC SECURITY FEATURES²

The table here under provides a description of the dynamic features of an EPL issued by *NAME OF THE LICENSING AUTHORITY* helping an inspector to assess the authenticity of an EPL. Dynamic features are meant to assert that an EPL presented on a self-contained mobile electronic visual display device is not a screen capture of a pilot licence.

DYNAMIC SECURITY FEATURES	DESCRIPTION	EXAMPLE - IMAGE
Touching the Licensing Authority logo	<i>Example: While touching the Licensing Authority logo, the logo is magnified and can be moved with the finger.</i>	
Touching the licence holder photo	<i>Example: While touching the licence holder photo, the photo is displaced in lower left corner.</i>	
Touching the licence holder name	<i>Example: While touching the licence holder name field, the font size and color is changed to...</i>	

¹ "Static" refers to those items that are designed to appear fixed in the display regardless of any interaction with the item.

² "Dynamic" refers to those items that are designed to change their standard display appearance when interacted with e.g. touched on the display.



5. SPECIFIC NATIONAL FEATURES

The table here under provides a description of the specific national features of an EPL issued by **NAME OF THE ISSUING AUTHORITY** helping an inspector to assess the authenticity of an EPL.

NATIONAL FEATURES	DESCRIPTION	EXAMPLE - IMAGE
The licence is available in the following national languages: - Dutch - French - German	<i>Example: The licence can be displayed in national languages by touching the upper right corner logos (DE, FR or NL)</i>	
Other		

6. OTHER SECURITY FEATURES

The table here under provides a description of any additional security features of an EPL issued by **NAME OF THE ISSUING AUTHORITY** helping an inspector to assess the authenticity of an EPL.

OTHER SECURITY FEATURES	DESCRIPTION	EXAMPLE - IMAGE
Licence number audio spelling	<i>Example: If the licence number is touched, the device will audibly dictate the licence number in English</i>	

7. AUTHENTIC DATA AVAILABLE SOURCE

In case of network connection issues or application issues, EPL data issued by the **NAME OF THE ISSUING AUTHORITY** can be verified by accessing the ICAO website at www.icao.int/epl, by selecting the **NAME OF THE ISSUING AUTHORITY** in the dropdown menu and by inserting the licence number of the licence holder.

8. CAA EPL CONTACT INFORMATION

In the case an inspector, or the Competent Authority would require further information on an EPL, the **NAME OF THE ISSUING AUTHORITY** can be contacted at:

MY CAA EPL CONTACT DETAILS	
Email address	John.Doe@mycaa.aero
Phone	+99 9999...



9. REFERENCES

The references inserted here below provides to the inspector more ICAO or national background information on the EPL.

- ICAO Annex 1 – *Personnel Licensing* is providing, under Appendix 4, the common form to be used in an EPL concerning the electronic display of the licence as it shall contain a view that replicates the wording and arrangement, in the English language, of this common form.

An extract of Annex 1 is inserted here for the courtesy of the inspector:

APPENDIX 4 – COMMON FORM OF THE ELECTRONIC PERSONNEL LICENCE
(Chapter 3, Section 3.5, right)

The common form shall be in the English language.

Electronic personnel licence	
General	I Name of State (in bold type).
	II Title of licence (in very bold type).
	III Serial number of the licence, as <i>Aviation Reference</i> , given by the authority issuing the licence.
Personal information	IVa Photograph of holder ¹ .
	IVb Name of holder in full (in Roman alphabet also if script of national language is other than Roman).
	IVc Date of birth (dd.mm.yyyy).
	IVd Address of holder if decided by the State.
Issuing authority	VI Nationality of holder.
	VII Script signature of holder.
	VIII Authority and, where necessary, conditions under which the licence is issued.
	IX Certification concerning validity and endorsement for holder to exercise privileges appropriate to the licence.
	X Digital signature of officer issuing the licence and the date and time of such issue.
	XIa Seal or stamp of authority issuing the licence.
	XIb Date and time of last synchronization with the server of the Licensing Authority.
XIc Machine readable code to retrieve authentication data.	

1. Guidance on the minimum size of the photograph is contained in the Manual of Procedures for Establishment and Management of a State's Personnel Licensing System (Doc 8176). Storage specifications are contained in the Aviation Reference Data Document, Part 3 – Specifications Common to all IATA Doc 8165.

ASXK1 APP 4-1 3/11/22

Appendix 4

Electronic personnel licence	
Rating	XIII Rating, e.g. category, class, type of aircraft, airframe, aerobics-related, etc.
Remarks	XIIIa Remarks, i.e. special endorsement relating to limitations and endorsements for privileges, including an endorsement of language proficiency, and other information required as per Annex 1, Article 29 of the Chicago Convention.
	XIIIb Any other details decided by the State issuing the licence.
Medical assessment	XIVa Class (1, 2 or 3).
	XIVb Expiry date (dd-mm-yyyy).
	XIVc Special medical limitations ¹ , if any.
	XIVd Other information associated with the medical assessment as determined by the Medical Authority.
Additional regulatory information	XVla Other information associated with the licence as determined by the Licensing Authority.
	XVlb Other information associated with the licence as determined by the Licensing Authority, and
	XVlc Other information associated with the licence as determined by the Licensing Authority.

1. Medical assessment is only required when specified in the annex.

1. Section used in 1.3.4.1.1

3/11/22 APP 4-2