ETSI STANDARD

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ETSI INTERFACE TO IMPLEMENT EUROPEAN INVESTIGATION ORDERS (EIOs)

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The ETSI work to provide a Technical Specification (TS) to support the Directive 2014/41/EU of the European Parliament and of the Council of 3 April 2014 regarding the European Investigation Order (EIO) in criminal matters [1] had started in 2016 and was carried on during all 2017 and 2018 on all technical aspects of the new interface resulting now finalized with the publication of a first version of the Inter LEMF Handover Interface (ILHI) [4]. This specification provides LEMF's with all implementation details to allow LI data transferring from one LEMF located in the country B (responding country where a target abroad is requested to be intercepted) to a LEMF located in the country A (requesting country where the request of interception is originated).

ETSI TC LI has identified a standard LI Architecture reference model to address the new EIO requirements which impose that an LEA of a country (country A) is able to get real-time intercepted product of a target using a communication service in a CSP network located in another country (country B) in certain circumstances. The standard solution provides LI data transfer between different national borders at the LEA's domain level without impacting the CSP interception domain implementation. The TS supported a modular approach by introducing new HI functionalities starting from the concepts of Requesting Authorized Authority (reqAA) and Responding Authorized Authority (resAA) with the corresponding Monitoring Facilities reqLEMF (in reqLEA) and resLEMF (in resLEA).



Figure 1: LI General Architecture for EIO



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The new ETSI Architecture standard model for EIO is shown in Figure 1 which introduces five different interfaces steps:

- 1. The requesting LEA or AA sends a message in accordance with EIO [1] to responding LEA or AA specifying the data it needs.
- 2. If accepted, the responding LEA or AA forwards this request to the CSP. HI1 standard defined by [2] may be used for such order towards the administrative entity of the CSP where the target is requested to be intercepted.
- 3. The CSP activates the request as a pure local request.
- The CSP provides the intercepted data IRI and CC to the responding LEMF by using the already available HI's (i.e. IP delivery HI's based on TS 102 232 parts mechanism, ref. [3])
- 5. The responding LEMF sends data forward as IRI IW and CC IW in (near) real time to the requesting LEMF.

ETSI TC LI worked to define this latter step 5 interface by writing a new Technical Specification (TS) for Inter LEMF Handover Interface, ref. [4]. This work had significant support in ETSI by all members types (Government, Network operators, MF/DF system providers) and its 1st TS version was focused only on LI aspects.





Figure 2 describes the functional diagram of this new HI, named ILHI, which supports the sending of LI data from the resLEMF and additionally the exchanging of all the control messages (e.g. error codes, keep alive messages) between resLEMF and reqLEMF. For data processing an Interworking function is defined for the resLEMF (resIWF) and for the reqLEMF (reqIWF). The resIWF shall process the data to provide interoperability while the reqIWF processes the data received over ILHI into local format as needed. The resIWF is structured into the three main functions of Mapping (MapF), Interoperability (IopF) and Encapsulation (EcsF) which all manage the LI data received from the CSP to create the PS-PDU with ILHI Payload.





MapF is optional with resLEMF deciding if and how it is used to generate a mapping from every element of a given set to a distinctive element of another set (e.g. Timestamp and Location information).

IopF shall generate the res Payload in accordance to TS 102 232 family when the CSP Received data is not using ETSI TS 102 232 and forward it in addition to the received data sent as original Payload to the EcsF. If the received data from CSP is already according to TS 102 232 format, IopF shall only deliver it as res Payload to EcsF.

EcsF manages the data provided by MapF and IopF to create the ILHI Payload which has been defined by ETSI [4] by re-using existing standard HI's TS 102 232 part 1 to 7 [3]. For the network layer, ILHI is proposed with two distinctive data flows (IRI and CC) using public Internet IP-VPN interconnection of the involved LEMFs or network connection secured by other means.

The new ILHI standard [4] resulted in greater efficiency and reduced impact on all parties concerned. A 2nd ILHI version has already been planned to provide Retained Data (RD) handover based on the ETSI TS 102 657 modelling. ©

ABBREVIATIONS

AA	Authorized Authority	RD	Retained Data
CSP	Communication Service Provider	reqAA	Requesting Authorized Authority
HI	Handover Interface	reqLEMF	Requesting LEMF
LEA	Law Enforcement Agency	resAA	Responding Authorized Authority
LEMF	Law Enforcement Monitoring Facility	resLEMF	Responding LEMF

REFERENCES

[1] Directive 2014/41/EU of the European Parliament and of the Council of 3 April 2014 on the European Investigation Order in criminal matters. http://eur-lex.europa.eu/legal-content/FR/TXT/?uri=uriserv%3AOJ.L_.2014.130.01.0001.01.FRA

[2] ETSI TS 103 120 Lawful Interception (LI); Interface for warrant information v1.1.1 (2018-07)

[3] ETSI TS 102 232-1 & -2, -3, -4, -5, -6, -7 Lawful Interception (LI); Handover Interface and Service-Specific Details (SSD) for IP delivery; Part 1, 2, 3, 4, 5, 6, 7.

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[4] ETSI TS 103 462 Lawful Interception (LI); Inter LEMF Handover Interface v1.1.1 (2018-06).

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