ECC Recommendation (19)03

Measures for increasing Trust in Calling Line Identification and Originating Identification

21 November 2019

amended 22 October 2026

Note: This Recommendation supersedes ECC/REC/(11)02

Edition 22 October 2026

INTRODUCTION

Calling Line Identification (CLI) functionality can be understood as a set of parameters within telecommunications networks that provide capabilities for sending, receiving, presenting and restricting E.164 telephone numbers. In certain ITU-T Recommendations the term Calling Party Number (CPN) is used which is defined as the E.164 number of the originator of the call. The concept of Originating Identification (OI) provides similar capabilities as the CLI, but the OI extends the traditional calling line identification to evolving network technologies using other identifiers in addition to E.164 numbers.

CLI/OI information is passed between operators and service providers to provide called users with information, which the terminal equipment may use to display the number or name of the calling subscriber. Furthermore, the CLI/OI information is used to call back, e.g. in a case of a missed call, to authenticate access to services such as a voice mail box, to trace the source of a malicious call, to access location databases, to locate the caller to emergency services and to route the call to its destination depending on the location or type of number (functionality e.g. in Intelligent Network (IN) translation services). The list is not exhaustive.

CLI/OI can be restricted or manipulated in a fraudulent way. Such practices do not only have an unfavourable effect on services based on CLI/OI, but are also increasingly used by fraudsters to mislead called parties.

The integrity of CLI/OI information is based on trust, that all operators and service providers involved in handling the call and, in particular, the originating operators and service providers only allow the correct contents of parameters to be transferred in the networks. With a growth in the electronic communication features offered and an increasing number of interconnected networks of different types (e.g. IP based networks) handling calls there are increasing challenges to guarantee the correctness of the received CLI/OI and some scope for abusing the CLI/OI functionality. This Recommendation proposes measures to increase trust in the CLI/OI.

Increasing trust in CLI/OI is specifically important where the CLIs have historically been considered as reliable and as such are still being perceived so by the broad public. The reduced reliability undermines the value of the obligation in the European Electronic Communications Code [1] to provide facility for end-users to send and receive CLIs.

Communications today are more global than ever before, and legislation governing electronic communications varies considerably across different parts of the world. As calls cross national borders, transiting and terminating operators and service providers have little or no means to verify correctness of electronic communications parameters they receive. Therefore, the correctness of various electronic communications parameters, such as CLI, depends on all operators and service providers involved in handling the call.

This Recommendation supersedes ECC/REC/(11)02.

ECC RECOMMENDATION 19(03) OF 21 NOVEMBER 2019 ON CALLING LINE IDENTIFICATION AND ORIGINATING IDENTIFICATION, AMENDED 22 OCTOBER 2026

"The European Conference of Postal and Telecommunications Administrations,

considering

a) Article 115 of Directive (EU)2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code (Recast) [1];

b) ECC Report 133 on Increasing Trust in Calling Line Identification and Originating Identification, September 2009 [2];

c) the ECC Report 248 on Evolution in CLI usage – decoupling of rights of use of numbers from service provision, April 2016 [3];

d) the ECC Report 275 on The Role of E.164 Numbers in International Fraud and Misuse of Electronic Communications Services, May 2018 [4];

e) ECC Report 360 on Definition of missing, invalid, or fraudulent CLI, November 2024 [5];

f) ECC Recommendation (23)03 "Measures to handle incoming international voice calls with suspected spoofed national E.164 numbers", November 2023 [6];

g) ECC Recommendation (25)04 "Measures to handle alphanumeric SMS Sender IDs", October 2025 [7];

h) the discussions and outcomes of the ECC WG NaN Workshop on the Role of E.164 Numbers in International Fraud and Misuse of Electronic Communications Services of 11 December 2018 [8];

i) the discussions and outcomes of the CEPT Workshop on Combatting Fraudulent Communications of 2-3 July 2024 [9];

j) the ITU-T Recommendation E.101 "Definitions of terms used for identifiers (names, numbers, addresses and other Identifiers) for public telecommunications services and networks in the E-series Recommendations", November 2009 [10];

k) the ITU-T Recommendation E.164 "The international public telecommunication numbering plan", February 2026 [11];

l) the ITU-T Recommendation E.156 "Guidelines for ITU-T action on reported misuse of E.164 number resources", September 2025 [12];

m) the ITU-T Recommendation E.157 "International Calling Party Number Delivery", June 2021 [13];

n) the ITU-T Recommendation Q.731.3 "Calling Line Identification Presentation", April 2019 [14];

o) the ETSI Technical Specification TS 184011 "Requirements and usage of E.164 numbers in NGN (Next Generation Networks) and NGCN (Next Generation Corporate Networks)", February 2011 [15];

p) the Secure Telephone Identity Revisited (STIR) / Signature-based Handling of Asserted information using toKENs (SHAKEN) protocols namely RFCs 7375, 7340, 8224, 8225 and 8226;

q) ATIS-1000074 - ATIS/SIP Forum NNI Task Group, "Signature-based Handling of Asserted information using toKENs (SHAKEN)", January 2017 [16];

r) that the CLI/OI does not necessarily identify the calling party since, for example, the calling party can be different to the subscriber;

s) that CLI/OI information presented to the called party should facilitate the ability to return a call.

recommends

1. that CEPT administrations should develop national regulations/guidelines on CLI/OI in line with this Recommendation;
2. that this Recommendation should apply, where relevant, in all electronic communications networks and for all electronic communication services (e.g. SMS) that use numbering resources and other identifiers to enable communication with a number or numbers in national or international numbering plans;
3. that premium rate numbers should not be presented as CLI/OI;
4. that, for security reasons, the CLI/OI should not be used alone as an authentication tool for access to applications and services. Multi-factor authentication should be used for such applications and services;
5. that, for network-provided CLI/OI, the originating operator/service provider is responsible for providing a valid CLI/OI, in accordance with national regulations, and/or guidelines, and taking into account ECC Report 360 [5], when setting up the call. A valid CLI/OI should be an assigned number that is correctly formatted and dialable;
6. that, for user-provided CLI/OI, the originating operator/service provider should always verify a user's right to use a given number. This verification should be made initially before the first use of the service, and then periodically, in accordance with national regulations/guidelines;
7. that the assignee of a block of numbers should not prevent the use of those numbers as user-provided CLI/OI in other services as long as the use is in conformance with the national regulations/guidelines;
8. that the interconnecting operators and service providers should include a commitment in the national and international interconnection agreements to transfer the proper CLI/OI information according to the regulations or guidelines of the countries involved;
9. that an operator/service provider originating, transiting or terminating electronic communications should not change a valid CLI/OI unless such a change is required in accordance with national regulations or guidelines. The format of an CLI/OI may be changed but only in accordance with relevant ITU Telecommunication Standardization Sector (ITU-T), European Telecommunications Standards Institute (ETSI) and Internet Engineering Task Force (IETF) deliverables on CLI/OI. For example, to display a national (significant) number in an international format;
10. that depending on bilateral and/or multilateral agreements or restrictions in cases of national legal and regulatory frameworks, the originating network may restrict CLI/OI information from being sent to the destination network when the CLI/OI Restriction supplementary service is requested by the calling party to prevent CLI/OI presentation to the destination subscriber in all cases. In this case the CLI/OI information sent across international boundaries shall always contain the restriction indicator and may also include the country code of the originating country, being marked in this case as an incomplete number in the international format;
11. that calls to parties with the authority to override the presentation restriction indication (e.g. emergency services) shall always present the network validated CLI/OI when available. If available and allowed by national regulation, user provided information may also be presented even if the CLI/OI is considered by the terminating operator to be invalid;
12. that originating, transit, or terminating operators/service providers should block any call ,restrict CLI/OI presentation, or, where technically feasible, warn the end-user where it can reasonably be assumed that the CLI/OI presented is missing, invalid, or fraudulent as defined in ECC Report 360

Note:

Please check the ECO Documentation Database https://docdb.cept.org/for the up to date position on the implementation of this and other ECC Recommendations.

ANNEX 1: LIST OF REFERENCES

[1] Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code (Recast)

[2] ECC Report 133: “Increasing Trust in Calling Line Identification and Originating Identification”, approved September 2009

[3] ECC Report 248: “Evolution in CLI usage – decoupling of rights of use of numbers from service provision”, approved April 2016

[4] ECC Report 275: “The Role of E.164 Numbers in International Fraud and Misuse of Electronic Communications Services”, approved May 2018

[5] ECC Report 360: “Definition of missing, invalid, or fraudulent CLI”, approved November 2024

[6] ECC Recommendation (23)03: “Measures to handle incoming international voice calls with suspected spoofed national E.164 numbers”, approved November 2023

[7] ECC Recommendation (25)04: “Measures to handle alphanumeric SMS Sender IDs”, approved October 2025

[8] ECC WG NaN Workshop on the Role of E.164 Numbers in International Fraud and Misuse of Electronic Communications Services of 11 December 2018, available here

[9] CEPT Workshop on Combatting Fraudulent Communications of 2-3 July 2024, available here

[10] ITU-T Recommendation E.101 (11/09): “Definitions of terms used for identifiers (names, numbers, addresses and other Identifiers) for public telecommunications services and networks in the E-series Recommendations”

[11] ITU-T Recommendation E.164 (02/26): “The international public telecommunication numbering plan”

[12] ITU-T Recommendation E.156 (09/25): “Guidelines for ITU-T action on reported misuse of E.164 number resources”

[13] ITU-T Recommendation E.157 (06/21): “International Calling Party Number Delivery”

[14] ITU-T Recommendation Q.731.3 (04/19): “Calling Line Identification Presentation”

[15] ETSI TS 184 011 V3.1.1 (2011-02): “Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Requirements and usage of E.164 numbers in NGN and NGCN”

[16] ATIS-1000074 - ATIS/SIP Forum NNI Task Group, "Signature-based Handling of Asserted information using toKENs (SHAKEN)", January 2017