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**Snapshot of E.164 Work - An Unofficial View**  
**<[draft-gallant-enum-e164-snap-00.txt](#)>**

Status of this Memo

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## **1. Abstract**

This is an unofficial snapshot of some E.164 work. It includes some information on E.164-series ITU-T Recommendations, "country code" assignments, and future pending decisions, meetings, and work.

E.164 is an ITU-T Recommendation on international numbering for public telecommunication. All views expressed in this Internet Draft are unofficial and are not intended to represent those of any organization, corporation, or Administration.

This Internet-Draft is an independent submission to the Telephone Number Mapping (enum) working group. Comments should be sent to the author.



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## [3. What E.164 Means](#)

E.164 refers to ITU-T Recommendation E.164 ("The international public telecommunication numbering plan", May 1997) [[2](#)]. Among other things, it describes various kinds of "country codes" used for international telephone calls (and for many other uses as well).

### [3.1 E.164 Numbers](#)

The term "E.164 number" is often refers to a full international number for connecting to a telephone via the PSTN (public switched telephone network). Here are two examples of E.164 numbers:

- IETF Secretariat (Reston, VA, USA)      +1 703 620 8990
- ITU (Geneva, Switzerland)              +41 22 730 51 11

The "+" sign isn't actually dialed. It indicates that an international prefix is needed, such as "011" from the US, or "00" from many countries. To place such a call, one might first have to reach an outside line, then dial the international prefix, and then the international number. The line and the prefix depend on where the caller is. The E.164 number (including country code) identify the called party.

If someone wanted to call the David L. Lawrence Convention Center in Pittsburgh from an office or hotel room in one of those many countries, the dialed digits would be: 9 - 00 - 1 415 565 6000. If

someone else wanted to call the ITU from a Pittsburgh hotel, the  
dialed digits would be: 9 - 011 - 41 22 730 51 11.

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### **3.2 Published E.164-Series Documents**

The E.164 series currently includes two published Supplements and one other published Recommendation in addition to E.164 itself. They are:

- Supplement 1 (03/98) to Rec. E.164, "Alternatives for carrier selection and network identification" [3],
- Supplement 2 (11/98) to Rec. E.164, "Number Portability" [4], and
- Recommendation E.164.1 (03/98), "Criteria and procedures for the reservation, assignment and reclamation of E.164 country codes and associated Identification Codes (ICs)" [5].

There are some other E.164-series documents in different stages of development or approval, and are identified later in this document.

### **3.3 Types of E.164 "Country Codes"**

E.164 describes three types of "country codes" that may be used for international telephone numbers involving geographic areas, global services, and Networks. Examples of these three kinds of E.164 country codes are the following:

- + 41 is assigned for Switzerland,
- +800 is assigned for International Freephone Service, and
- +882 nn is reserved/assigned for certain international Networks.

However, there are several notes. There is some E.164-specific terminology (e.g., "global services" and "Networks") and usage contained in E.164. Also, various other Recommendations or drafts may apply to codes, number formats, and usage. Finally, there are some other E.164 codes and uses that these three types do not cover. This is a very active area of work.

E.164 itself does not contain lists of assigned, reserved, or spare country codes. The ITU publishes specific updates in its Operational Bulletin [6], issued twice monthly. The most recent complete list of E.164 country codes was published as an Annex to the 1 June 2000 issue of the Operational Bulletin [7].

### **3.4 Work on E.164**

During the 1997-2000 study period, work on E.164 was the responsibility of Q1/2 of WP1/2 of SG2 of the ITU-T coordinated with the ITU TSB.

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In other words:

- Q1/2 is Question 1 (Applications of numbering and addressing plans for fixed and mobile services) of SG2,
- WP1/2 is Working Party 1 (Numbering, routing, global mobility and Services Definition) of SG2,
- SG2 is Study Group 2 (Network and service operation),
- ITU-T is the Telecommunication Standardization Sector of the ITU,
- ITU is the International Telecommunication Union, and
- TSB is the ITU Telecommunication Standardization Bureau.

There were other Questions where E.164-related work took place, including Q2/2 (Routing and interworking plans for fixed and mobile networks) and Q10/2 (Management and development of PSTN-based telecommunication services). This document is a snapshot focused on E.164, so other E.164-related work is not discussed here.

A lot of information about the ITU, including documents, current structure, procedures, and more, may be found on the ITU web site [\[8\]](#). However, certain conditions (e.g., registration, subscription, or purchase) may apply in some instances.

#### **4. Some E.164 Country Code Assignments/Reservations**

In addition to the E.164 country codes that are used for a "country" or an "integrated numbering plan," a number of codes are assigned or reserved for different purposes. Various Recommendations, or draft Recommendations under development, may apply.

Some of those codes are given below. They show the wide range of E.164 usage. The situation continues to be dynamic.

Note: IC (identification code) is the field of digits that comes after the CC (country code) in some shared codes.

- Codes 0XX are reserved for the present.
- Code 388 is assigned as a shared code for a Group of Countries; the CC+IC of "+388 3" is assigned to the network ETNS (European Telephony Numbering Space).
- Code 800 is assigned for the International Freephone Service.

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- Codes 808 and 979 are reserved for the International Shared Cost Service (ISCS) and the International Premium Rate Service (IPRS), respectively.
- Code 878 is reserved for the UPT (Universal Personal Telecommunication) Service; the set of E.164 numbers beginning with "+878 878" is reserved for UPT field trials via IP-based technology.
- Code 991 is reserved as a shared code for International Trials.
- Code 882 is assigned as a shared code for International Networks; a number of CC+ICs of the form "+882 nn" are assigned or reserved for certain Networks.
- Code 881 is assigned as a shared code for Global Mobile Satellite Systems (GMSS); several pairs of CC+ICs of the form "+881 n" have been assigned or reserved for certain GMSS networks.
- Codes 87X are assigned or reserved for a number of uses that include historical and/or national matters. Code 870 is assigned for Inmarsat SNAC (single network access code), and codes 871 through 874 now in use for Ocean Regions will be returned in a number of years. Codes 875 through 877 are reserved for Maritime Mobile Service Applications, and code 879 is reserved for national non-commercial purposes.
- Codes 28X, 83X, and 89X are reserved for E.164 country code expansion.

## **5. Future Decisions, Meetings, and Work**

Work and issues surrounding ITU-T Rec. E.164 will involve decisions to be made on current and ongoing work, meetings, and the organization, plans, and scope of future work.

### **5.1 Upcoming Decisions on Recommendations**

At the last meeting of ITU-T SG2 for the 1997-2000 study period (Geneva, 7-17 March 2000), Recommendations that were not yet approved were grouped into three sets according to their status.

SG2 identified one Recommendation for SG2 to approve at its next meeting and two Recommendations for SG2 to develop further, as well as three Recommendations proposed for approval at the WTSA-2000.

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First, three E.164-related Recommendations were proposed by SG2 for approval by the September 27 to October 6 meeting of WTSA-2000 [[9](#)]:

- Recommendation E.169.2 (New) - Application of Recommendation E.164 Numbering Plan for Universal International Premium Rate Numbers for the International Premium Rate Service,
- Recommendation E.169.3 - Application of Recommendation E.164 Numbering Plan for Universal International Shared Cost Numbers for International Shared Cost Service, and
- Recommendation E.195 (New) - ITU-T International Numbering Resource Administration.

Next, one E.164-related Recommendation is proposed by SG2 for approval at its next meeting (possibly 23-26 January 2001) [[10](#)]:

- Draft Recommendation E.164.2 - E.164 numbering resources for trials.

Among the Recommendations listed by SG2 as requiring further development, the two E.164-related ones are [[11](#)]:

- Draft Recommendation E.164.3 - Principles, criteria and procedures for the assignment and reclamation of E.164 country codes and associated identification codes for groups of countries, and
- Draft Recommendation E.TIPI - Naming, numbering and addressing for interworking between E.164 and IP address-based networks.

Note again that while Q1/2 (on numbering) was responsible for E.164, E.164-related work also took place in other Questions, most notably Q2/2 (on routing) and Q10/2 (on PSTN-based services). As mentioned above in this document, that other work is not discussed here.

## **[5.2](#) Future Meetings**

It is important to clarify that future work depends on the upcoming meeting of the WTSA-2000 (World Telecommunication Standardization Assembly, Montreal, September 27 to October 6, 2000) [[12](#)].

The WTSA will consider inputs from SG2, the other ITU-T Study Groups, and the June 2000 Geneva meeting of TSAG (the Telecommunication Standardization Advisory Group). On the WTSA's agenda are proposals on the work program and organization of the entire ITU-T.

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Therefore, assumptions about E.164 work going on in a future SG2, including a next meeting possibly being in January 2001, should only be seen as tentative until they are finalized after the WTSA.

In addition to the WTSA and the proposed SG2 meetings, there is an "interregnum" meeting of Working Party 1/2 (Numbering, Routing, Global Mobility, and Service Definition) scheduled for 19-26 October 2000 in Berlin [[13](#)]. The meeting includes Q1/2, Q2/2, and Q10/2.

To summarize chronologically, the upcoming meetings are:

- WTSA 27 Sep to 6 Oct 2000 Montreal
- WP1/2 19 to 26 Oct 2000 Berlin (interregnum meeting)
- SG2 23 to 26 Jan 2001(?) Geneva(?) (depends on WTSA)

### **[5.3](#) Future E.164 Work**

Proposals for future SG2 work, including work on E.164, have been prepared for the WTSA to consider [[14](#)]. Some of the project areas proposed for the future Question on numbering include the following:

- Requests for numbering resources for new services;
- Naming, numbering, and addressing for interworking between E.164 and IP address-based networks;
- E.164 resources for international trials;
- Number portability
- Criteria for the assignment of codes to groups of countries, for the assignment of E.212 (IMSI/MCC/MNC) resources, and for allocation of Rec. E.353 international routing addresses;
- E.164 country code exhaust;
- Activation of, and opening access to, E.164 Numbering Resources;
- Mobile numbering issues (as needed); and
- Global evolution of naming, numbering, and addressing.

Other future ITU-T Questions will also have significant work related to E.164. Also, coordination with other fora (i.e., the IETF) will be essential. It will be interesting to see what the final actions of WTSA-2000 on ITU-T working methods, the ITU-T work program and structure, and other matters will hold in store for future E.164 work.

## **[6](#). Security Considerations**

None.

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## 7. References

- [1] Bradner, S., "The Internet Standards Process -- Revision 3", [BCP 9](#), [RFC 2026](#), October 1996.
- [2] ITU-T Recommendation E.164 (05/97), "The international public telecommunication numbering plan".
- [3] Supplement 1 (03/98) to ITU-T Rec. E.164, "Alternatives for carrier selection and network identification".
- [4] Supplement 2 (11/98) to ITU-T Rec.E.164, "Number Portability".
- [5] ITU-T Recommendation E.164.1 (03/98), "Criteria and procedures for the reservation, assignment and reclamation of E.164 country codes and associated Identification Codes (ICs)".
- [6] "ITU Operational Bulletin", <http://www.itu.int/ITU-T/bulletin/index.html>, June 23, 2000.
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- [8] "International Telecommunication Union (ITU) Home Page", <http://www.itu.int/>, June 14, 2000.
- [9] ITU-T COM2-R83, "Report of the meeting of Study Group 2, Geneva, 7-17 March 2000: Recommendations proposed for approval by the WTSA-2000", 23 May 2000.
- [10] ITU-T COM2-R77, "Report of the meeting of Study Group 2, Geneva, 7-17 March 2000: Recommendations determined for approval at the next meeting of Study Group 2; Developed by WP 1/2", 17 May 2000.
- [11] ITU-T COM2-R80, "Report of the meeting of Study Group 2, Geneva, 7-17 March 2000: Recommendations requiring further development; Developed by WP 1/2", 5 May 2000.
- [12] "World Telecommunication Standardization Assembly (WTSA) 2000", <http://www.itu.int/ITU-T/wtsa.htm>, May 30, 2000.
- [13] ITU TSB Collective Letter 13/2, "Meeting of Working Party 1/2 (Numbering, Routing, Global Mobility and Service Definition), Berlin, Germany 19-26 October 2000", 23 June 2000.
- [14] WTSA-2000 Document 002, "ITU-T Study Group 2: Report to the

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