WORLD TELECOMMUNICATION STANDARDIZATION ASSEMBLY
New Delhi, 15-24 October 2024

Resolution 64 – Promoting, facilitating and accelerating the transition to and deployment of Internet Protocol version 6

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, and information and communication technologies (ICTs). The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

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RESOLUTION 64 (Rev. New Delhi, 2024)

Promoting, facilitating and accelerating the transition to and deployment of Internet Protocol version 6

(Johannesburg, 2008; Dubai, 2012; Hammamet, 2016; Geneva, 2022; New Delhi, 2024)

The World Telecommunication Standardization Assembly (New Delhi, 2024),

recognizing

a)   Resolutions 101 (Rev. Bucharest, 2022), 102 (Rev. Bucharest, 2022) and 180 (Rev. Bucharest, 2022) of the Plenipotentiary Conference, and Resolution 63 (Rev. Kigali 2022) of the World Telecommunication Development Conference;

b)   that the exhaustion of Internet Protocol version 4 (IPv4) addresses and their limitations, call for promoting, facilitating and accelerating the transition to and deployment of Internet Protocol version 6 (IPv6), which has become an important issue for Member States and Sector Members;

c)   the result of the ITU IPv6 Group, which has carried out the work that was assigned to it;

d)   that future work on IPv6 human capacity building is to be continued and led by the Telecommunication Development Bureau (BDT), in collaboration with other relevant organizations, if required,

noting

a)   that Internet Protocol (IP) addresses are fundamental resources that are essential for the future development of IP-based networks and information and communication technology (ICT) services and for the world economy;

b)   that many countries believe that there are historical imbalances related to IPv4 allocation;

c)   that large contiguous blocks of IPv4 addresses are no longer available to many users and that it is urgent to promote, facilitate and accelerate the transition to and deployment of IPv6;

d)   the ongoing collaboration and coordination between ITU and relevant organizations on IPv6 capacity building in order to respond to the needs of Member States and Sector Members;

e)   the progress towards adoption of IPv6 that has been made over the last few years;

f)   that the regional Internet registries (RIRs) are key players in establishing coherent policies and promoting best practices for the Internet,

considering

a)   that, among the relevant stakeholders in the Internet community, there is a need to continue discussions related to IPv6 deployment and disseminate information and build human capacity in this regard;

b)   that the promotion, facilitation and acceleration of IPv6 deployment is an important issue for Member States and Sector Members;

c)   that many developing countries[1] are still facing challenges in the IPv4 to IPv6 transition process, including due to limited technical skills and human capacity in this area and the costs involved;

d)   that there are Member States with sufficient technical skills in IPv6 that are nevertheless encountering a delay in the IPv4 to IPv6 transition due to various reasons;

e)   that Member States have an important role to play in promoting the deployment of IPv6;

f)   that prompt deployment of IPv6 is increasingly urgent on account of the rapid rate of depletion of IPv4 addresses;

g)   that public procurement frameworks and market mechanisms can encourage the deployment of IPv6;

h)   that the depletion of IPv4 addresses and the delay in the deployment of IPv6 may hinder new and emerging telecommunications/ICTs;

i)   that many developing countries want the ITU Telecommunication Standardization Sector (ITU-T) to become a registry of IP addresses in order to give developing countries the option of obtaining IP addresses directly from ITU, while other countries prefer to use the current system;

j)   that deployment of IPv6 facilitates Internet of Things (IoT) solutions, which require a huge quantity of IP addresses;

k)   that the deployment of IPv6 is an important enabler of digital transformation and of digital innovation;

l)   that new communication infrastructure such as 4G/LTE and 5G networks will require IPv6 support for better communication,

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[1] These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

resolves

1   to instruct ITU-T Study Groups 2 and 3, each according to its mandate, to analyse statistics for the purpose of assessing the pace and geography of IPv6 address allocation and registration for interested members and, in particular, developing countries, in collaboration with all relevant stakeholders;

2   to enhance the exchange of experiences and information with all stakeholders regarding all aspects of the deployment of IPv6, with the aim of creating opportunities for collaborative efforts and the enhancement of technical skills, and to ensure that feedback exists to enrich ITU efforts to promote, facilitate and accelerate the transition to and deployment of IPv6,

instructs the Director of the Telecommunication Standardization Bureau, in close collaboration with the Director of the Telecommunication Development Bureau

1   to continue the ongoing activities between the Telecommunication Standardization Bureau and BDT, taking into consideration the involvement of those partners willing to participate and bring their expertise to assist developing countries with IPv6 transition and deployment, and respond to their regional needs as identified by BDT, taking into account Resolution 63 (Rev. Kigali, 2022);

2   to maintain, update, and enhance the website which provides information about global activities related to IPv6, including hyperlinks to monitoring and tracking initiatives, in order to facilitate awareness-raising and highlight the importance of IPv6 deployment for the entire ITU membership and interested entities, as well as information related to training events being undertaken by ITU and relevant organizations (e.g. RIRs, network operator groups and the Internet Society (ISOC));

3   to promote awareness of the importance of IPv6 deployment, facilitate human capacity building through joint training activities, involving appropriate experts from the relevant entities, provide information, including roadmaps and guidelines, and technical assistance in the continued establishment of IPv6 testbed laboratories in developing countries in collaboration with appropriate relevant organizations, and to promote awareness of the need for IPv6 deployment with regard to IoT given the substantial demand for IP addresses for IoT devices;

4   to promote the best practices of government programmes, including procurement, in order to facilitate the transition to and deployment of IPv6;

5   to promote discussions between ITU Member States, Sector Members and relevant regional and international organizations on the transition to and deployment of IPv6;

6   to support BDT in relevant IPv6 training for engineers, network operators, content providers and service providers, mainly in developing countries, that can enhance their skills and that they can further apply to planning, deployment and operation at their respective organizations,

further instructs the Director of the Telecommunication Standardization Bureau

1   to report to the ITU Council and also to the 2028 world telecommunication standardization assembly regarding the progress on action taken with respect to *resolves* above;

2   to collaborate with relevant stakeholders to promote network devices and customer premises equipment with dual-stack, in particular in developing countries,

invites Member States and Sector Members

1   through the knowledge gained under this resolution, to promote specific initiatives at the national level which foster interaction with governmental, private and academic entities and civil society for the purposes of the information exchange necessary for the deployment of IPv6 in their respective countries;

2   to ensure that newly deployed network equipment, computer equipment and software have IPv6 capability, and to collaborate with relevant international organizations in this regard;

3   to consider committing to IPv6 deployment and communicating progress;

4   to build relevant IPv6 deployment plans;

5   to make use of the ITU website, which provides information about global activities related to IPv6;

6   to consider how public procurement frameworks and market mechanisms can promote, facilitate and accelerate deployment,

invites Member States

1   to develop national policies to promote the technological update of systems, in order to ensure that the public services provided utilizing the IP protocol and the communication infrastructure, websites and relevant applications of the Member States are compatible with IPv6;

2   to consider the possibility of national programmes to encourage Internet service providers and other relevant organizations to deploy IPv6;

3   to encourage, with support from the ITU regional offices, the RIRs and other regional organizations in coordinating research, dissemination and training actions with participation by governments, industry and the academic community in order to facilitate the deployment and adoption of IPv6 within their countries and in their region, and to coordinate initiatives between regions to promote its deployment worldwide;

4   to consider using government procurement requirements to encourage deployment of IPv6 among ISPs and other relevant organizations, if appropriate;

5   to share best practices, experiences, knowledge and expertise regarding IPv6 deployment;

6   to consider ways, such as initiating stakeholder consultations, to encourage, promote, facilitate and accelerate the transition to and deployment of IPv6.