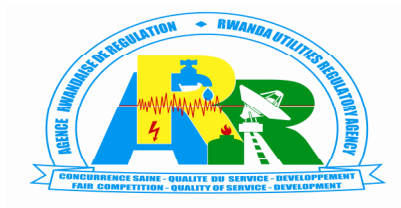


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GUIDELINES FOR RWANDA INTERNET EXCHANGE POINT (RINEX) MANAGEMENT

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GUIDELINES FOR RWANDA INTERNET EXCHANGE POINT (RINEX) MANAGEMENT

Rwanda Internet Exchange (RINEX) is an interconnection point of internet service providers ISPs in Rwanda. The main goal is to enable the traffic exchange locally without routing through international networks. However RINEX can also be used for routing of internet traffic between the networks in Rwanda and the peer or downstream networks of RINEX participants in other countries. RINEX serves ISPs with proper licenses, local and international Research and Education networks as well as international network services providers and Internet exchanges.

In exercise of powers conferred to the Regulatory Board under the chapter 2, article 3 section 9 of the Presidential Order no 04/01 of 15/03/2004 determining **specific duties of the regulatory board in telecommunications matters**, Rwanda Utilities Regulatory Agency (RURA) hereby makes the following guidelines:

I. DEFINITION TO TERMS AS USED IN THESE GUIDELINES

1.1 Short title, extent and commencement

- (1) These guidelines shall be titled as: ***Rwanda Internet Exchange Point guidelines or RINEX guidelines, 2009.***
- (2) These guidelines shall be applicable to all Internet Services Providers, Telecom operators, content delivery service providers, authorized entity for RINEX Management and all other related entities on the subject.
- (3) This guidelines shall be into force with effect from 04 September 2009.

1.2 Definitions

In these guidelines, unless the context otherwise requires:

"AS number" is a unique identifier for a collection of IP networks and routers under the control of one entity.

"BGP" (Border Gateway Protocol) is the core routing protocol of the internet. It maintains a table of an IP network of "prefixes" which designate network reachability among Autonomous Systems (AS). It is described as a path vector protocol.

"Computer data" means any representation of facts, information or concepts in a form suitable for processing in a computer system, including a program suitable to cause a computer system to perform a function;

"Computer system" means any device or a group of interconnected or related devices, one or more of which, pursuant to a program performs automatic processing of data;

"Internet protocol" The Internet Protocol (IP) is the method or protocol by which data is sent from one computer to another on the Internet. Each computer (known as a host) on the Internet has at least one IP address that uniquely identifies it from all other computers on the Internet.

"Exchange" means an Internet Exchange point facility approved by the Regulator for the purposes of these guidelines.

"Interconnection" refers to reciprocal services (but not necessary the same services); offered by two operators providing a public telephone service in order to allow all users to communicate freely amongst themselves regardless the telecommunications networks to which they are connected or the telecommunications services they use.

"Internet" is a global information system that is: logically linked together by a globally unique address, based on internet protocol (IP) or its subsequent enhancements/up gradations; able to support communications using Transmission Control Protocol (TCP/IP) suite or its subsequent enhancements/up gradations, and all IP compatible protocols.

"Internet Service Provider (ISP)" means the telecommunications company, any other company or any person who holds a license or permit to provide access to Internet and other data networks services under the telecom law and ICT guidelines made there under ;

"Peering" will be the term used for exchanging traffic on the RINEX. Peering is a bilateral agreement between two ISPs. There is no rule that you have to peer with all other ISPs on the RINEX. It is up to the individual ISP who they want to peer with.

"Regulator" refers to the Regulatory Agency which is the public autonomous body created by the law No 39/2001 of 13 September 2001 establishing an agency for the regulation of public utilities;

"RINEX" means Rwanda Internet Exchange (Point).

"Telecom Law" means the law No 44/2001 of 30 November 2001 organizing telecommunications.

"Telecommunications operators" means any person who holds a valid license or permit to provide a telecommunications service under the telecom law or is registered under the law as aforesaid.

"Traffic data" means any computer data relating to a communication by means of a computer system, generated by a computer system that forms part in the chain of communication, indicating its origin, destination, path or route, time, date, size, duration or type of underlying network service;

"User" means any person using the services of an Internet Service or a telecommunications company.

II. GENERAL GUIDELINES

The telecommunications operators and Internet Service Providers shall meet the guidelines as laid down below:

2.1 Obligation to interconnect to exchange

- (1) It shall be the obligation of every Internet Service Provider to interconnect its computer system and to keep it interconnected at all times (24/7) to an Exchange for the purpose of facilitating the efficient routing and interconnection of Internet Protocol transit networks within Rwanda and of avoiding the use of international lines for Internet Protocol traffic between Internet users in Rwanda and of consequently improving the general connectivity of the Internet.
- (2) Internet Service Providers which satisfy the Regulator that they do not have a direct international connection to the Internet through which Internet access is provided to their customers may be exempted in writing by the Regulator from the obligation stipulated in these guidelines.
- (3) It shall be the obligation of every Internet Service Provider to distribute and receive routing information for local traffic data to or from all members of the Exchange.

2.2 Traffic and engineering data

- (1) The Exchange shall be entitled to demand such a reasonable extent of traffic data and engineering data from Internet Service Providers as is necessary and proportionate for it to be able to perform its functions efficiently.
- (2) Any data collected by the Exchange in terms of these guidelines shall be kept confidential by the Exchange subject to any obligation of disclosure in accordance with the applicable laws.
- (3) The Exchange shall comply with the telecommunications law and regulations in respect of any data collected in pursuance of these guidelines.

2.3 Interconnection Policy of RINEX

- (1) RINEX shall be versatile enough to accommodate all type of interconnect links as per licensing/ regulatory requirements.
- (2) An ISP at any RINEX node must at a minimum announce all its regional routes to the RINEX router at that RINEX location. All ISPs connecting to that RINEX node are entitled to receive these routes using a single BGP session with the RINEX router. This will guarantee the exchange of regional traffic within RINEX. This is referred to as forced regional multi-lateral peering.

- (3) In the case, one RINEX member is already providing transit to another RINEX member, the exchange of regional routes mentioned in (ii) above, may also happen using a separate private connection between the ISPs.
- (4) ISPs shall announce only those routes that belong to their AS, i.e their own network, and their customer routes at the RINEX. An ISP in any region can aggregate traffic from other ISPs in the region and connect to the RINEX through a single connection.
- (5) The RINEX router shall only exchange information but not carry any transit traffic.
- (6) All RINEX members must ensure that they suitably and proactively upgrade capacity from time-to-time so that they do not end up dropping traffic that other peers are exchanging with them.
- (7) The routing policy here also applies to "large" content providers to directly peer at any of the RINEX nodes. They will be treated like stand-alone Data Centers. For this they need to adhere to the following criteria:
 - a. They must have their own AS number
 - b. The content hosted by them should be in accordance with Rwandan laws (i.e they should not be hosting obscene content or promoting gambling or anti-national content, or any other content that violates either the ISP license condition or any other Rwandan Law)

2.4 Quality of Services

- (1) All critical components of RINEX should be up for 99.00 % of time in a quarter. These critical components are RINEX routers/Switches, interface module on which the links of the ISPs are terminated and any other equipment which affects the RINEX traffic. Non critical faults which do not affect RINEX traffic like failure of one power supply module should be rectified by RINEX within 48 hours.
- (2) Switching Architecture of RINEX shall be non-blocking, so that it does not introduce any delay.
- (3) Uninterrupted power shall be ensured to the equipment of the ISP and RINEX router itself in the RINEX node. Power availability can be 99.00% in a quarter.
- (4) RINEX shall ensure proper environment (Proper Air conditioning with Humidity control) for housing equipments of RINEX and its member ISPs
- (5) Augmentation of ISPs Bandwidth to RINEX: - ISP shall augment its bandwidth to RINEX, if the utilization of the existing link exceeds 80% of the capacity for 4 hrs in a day and for 7 days. Such capacity management shall be through increase of capacity and not through reduction routes announced. The augmentation should normally be completed within a period of one month after RINEX reported to the concerned ISP. This time should be extendable

by one more month in valid cases like ISP having tangible problem and in case some additional equipments are required to be procured.

- (6) Facility for ensuring security of RINEX equipments like access control, monitoring and keeping records of entry in equipment room etc shall be ensured.

2.5 Tariff

The RINEX management has the right to set up the tariff policy/ per unit according to agreed parameters (Data traffic, bandwidth, etc...). This policy shall be approved by the Regulator.

2.6 Dispute resolution

- (1) Any unresolved dispute between Internet Service Providers or between such Providers and the Exchange regarding the terms and conditions of interconnection to the Exchange or relating to any matter concerning the implementation of these guidelines may be brought before the regulator for resolution by any party to such dispute.
- (2) In deciding upon any dispute referred to in these guidelines the Regulator shall employ easily accessible and in principle, inexpensive procedures to resolve such dispute in a fair, transparent and timely manner.
- (3) The existence of a dispute about the terms and conditions of interconnection to the Exchange or with regard to any matter concerning the implementation of these guidelines shall not exempt, suspend or postpone the obligation of an Internet Service Provider to interconnect to the Exchange in terms of these guidelines.

2.7 Telecommunications operators

A telecommunications operator leasing line bandwidth to ISPs shall ensure that those ISPs are connected to the Exchange Point in terms of these guidelines.

2.8 Exchange

It shall be an obligation of an Exchange to accept interconnection with Internet Service Providers in accordance with these guidelines.

2.9 System interference

Where an Internet Service Provider processes or stores computer data on a computer system in a manner configured or intended for public access through a computer system, the Internet Service Provider shall ensure that such public access is not provided in a discriminatory manner and it shall in particular ensure that the technical means through which such access is made are not interfered with in a

manner that denies, unduly delays or otherwise hinders such access to users of other Internet Service Providers.

2.10 Directives of the regulator

An Internet Service Provider on Exchange and a Telecommunications operator shall comply with any decision and directive given by the Regulator in respect of matters concerning the duty to interconnect to an Exchange provided for in these guidelines and shall promptly take such measures as the Regulator may direct them to take for the purposes of implementing or of facilitating the implementation of these guidelines.

2.11 Reporting requirement

It shall be an obligation for the RINEX management to submit a report in the format to be prescribed by the Regulator on the quarterly basis, ending 31st March, 30th June, 30th September, and 31st December, but not later than 15 working days from the end of the quarter.

2.12 Approved internet exchange facility and administration

The Internet Exchange Point Facility and its administration shall be approved by the Regulator.

Done at Kigali, on 04 September 2009

(Sé)

Marie Claire MUKASINE

Chairperson