

**Government of India  
Ministry of Railway  
(Railway Board)**

**No. 2000/Tele/TW/1/Railnet Works/Pt 1**

**Date: 25.04.2011**

**Chief Signal and Telecom Engineer,  
All Indian Railways.**

**Chief Administrative Officer,  
IRPMU,  
New Delhi.**

**Managing Director,  
RailTel Corporation of India Limited,  
New Delhi.**

**Sub: Regarding Work of "Extension of Railnet to remote office locations and residential colony on Indian Railways."**

RailTel Corporation of India Limited has awarded the subject work to M/s HCL Infosystem for execution. It has also signed an MoU with IRPMU in relation to this work. The work aims at providing extension of Railnet to remote offices and residential colonies by extending Railnet to these locations using the existing copper cable of Railways through DSLAMs.

The following guidelines are issued for smooth and timely execution of this work.

1. There are two types of DSLAMs that are being provided on Indian Railways. Type I DSLAM has a capacity of 640 ports and shall be equipped with 528 ports. Type II DSLAM has a capacity of 256 ports and shall be equipped with 192 ports.
2. The location where these DSLAMs will be provided is enclosed as Annexure I.
3. At each of the site DSLAM system, a 24 port switch and a secure caching gateway system will be installed. These shall be powered by -48V DC. The power consumption of Type I DSLAM location is 1500 W, that of Type II DSLAM location is 825 W including that of caching gateway system and I.2 Switch. Railways may ensure that adequate power supply system is available in the exchanges where these equipments are to be installed. Railway may allow RailTel/HCL to connect the equipments to the existing power supply system in the standard method being used in Railways.
4. Standard 42U 19" rack will be provided by M/s HCL under this contract. Railways may allocate space for one 19" rack for installation of the DSLAM, Switch and Caching gateway system.
5. Railways should arrange to connect the DSLAM system to the MPLS network using SDH network in coordination with RailTel. The bandwidth for the same shall be as under:
  1. Type I DSLAM locations: 20 Mbps (Ethernet)
  2. Type II DSLAM locations: 10 Mbps (Ethernet)In case, Ethernet connectivity is not available/feasible, E1 connectivity of up to 8Mbps may be provisioned by Railways in coordination with RailTel.

6. RailTel Corporation may inform Railways about the detailed bill of material to be installed at each of the locations.
7. RailTel should define a separate VPN for the residential broadband and arrange for interconnectivity of Railnet with it.
8. The IP scheme to be followed for residential broadband is enclosed in Annexure II. RailTel may formulate the detailed IP plan and intimate Board.
9. Railway Broadband users should be classified in three categories viz. I, II and III. Category I users should be provided with the highest priority and category III users with the least priority. The categorization of users should be decided by Railways themselves.
10. On the Ethernet last mile, connecting the MPLS router and DSLAM system, three different VLANs should be planned and different category of users should be configured on different VLANs. MPLS routers of RailTel should treat the traffic of these as per the priority defined in (f) above. In case the last mile is on E1, separate E1s should be used for different category of users. Static/OSPF routing should be used between PE and CE routers.
11. Railways may allow modification of user telephone pair wiring from exchange MDF to splitter unit of DSLAM, splitter unit to DSLAM MDF and DSLAM MDF to user for making through residential broadband.
12. The ADSL2+ modem with splitters will be provided on existing telephone lines of the subscribers. Any modification in subscriber wiring for provision of splitter unit shall be done by Railway themselves. 220V AC power supply connection for powering the ADSL2+ device shall also be arranged by Railways.
13. Final testing of Railnet connectivity at Railway Colonies should be done jointly by Railways and RailTel's representatives. RailTel shall issue standard test documents so as to enable this testing.
14. RailTel/HCL shall install only 50 ADSL2+ modems at residences as identified by Railways at Type I DSLAM locations and 25 ADSL2+ modems at residences as identified by Railways at Type II DSLAM locations. The rest of the ADSL CPEs shall be handed over to Railway for installation themselves. For this purpose, RailTel shall arrange suitable on-site training in coordination with Railways.
15. Railways may nominate one officer and one supervisor to coordinate with RailTel and IRPMU on a day to day basis for the whole work. RailTel Corporation has dedicated Sri Rahul Joshi (9717644202, [rahul.joshi@railtel.com](mailto:rahul.joshi@railtel.com)) for coordination from RailTel's side. He may be consulted on day to day matters. IRPMU shall also nominate officers and supervisor accordingly for coordination purpose. RailTel may collect the nominations accordingly and inform Board about the same.



**Rakesh Ranjan**  
**Director (Telecom)**  
**Ministry of Railways**  
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Encl: 06 sheets.

Copy to: GGM/CNOC/RCIL for information and necessary action.

## Distribution of Quantity of DSLAM/ADSL CPE's

Annexure-I

Railway	Place of HQ	Qty of 528/640 Port IPDSLAM	No. of ADSL CPEs including spares	Division/ PSU Exchanges	Qty of 192/256 Port IPDSLAM	No. of ADSL CPEs including spares
1 Central Railway	Mumbai CST	1	592	1 Mumbai	4	880
				2 Solapur	1	220
				3 Nagpur	1	220
				4 Bhusawal	1	220
				5 Pune	1	220
2 Eastern Railway	Kolkata Fairly Place	1	592	6 Howrah	2	440
				7 Sealdah	1	220
				8 Asansol	1	220
3 East Central Railway	Hajipur	1	592	9 Malda	1	220
				10 Danapur	1	220
				11 Dhanbad	1	220
				12 Mughalsarai	1	220
				13 Sonpur	1	220
4 East Coast Railway	Bhubaneshwar	1	592	14 Samastipur	1	220
				15 Khurda Road	1	220
				16 Sambalpur	1	220
5 Northern Railway	New Delhi Baroda House	1	592	17 Waluer	1	220
				18 Ambala	1	220
				19 Delhi	4	880
				20 Ferozpur	1	220
				21 Lucknow	2	440
6 North Central Railway	Allahabad	1	592	22 Moradabad	1	220
				23 Allahabad	1	220
				24 Agra	1	220
				25 Jhansi	1	220
				26 Lucknow	1	220
7 North Eastern	Gorakhpur	1	592	27 Varanasi	1	220
				28 IzzatNagar	1	220
8 North Frontier	Guwahati Maligaon	1	592	28 Tinsukia	1	220
				30 Lumding	1	220
				31 Rangia	1	220
				32 Alipur dvar	1	220
				33 Kathiar	1	220
9 North Western	Jaipur	1	592	34 Ajmer	1	220
				35 Jaipur	1	220
				36 Jodhpur	1	220
10 Southern Railway	Chennai	1	590	37 Bikaner	1	220
				38 Chennai	4	880
				39 Madurai	1	220
				40 Trichy	1	220
				41 Palighat	1	220
				42 Trivandrum	1	220
11 South Eastern Railway	Kolkata Garden Reach	1	592	43 Adra	1	220
				44 Chakaradharpur	1	220
				45 Kharagpur	1	220
				46 Ranchi	1	220
				47 Sccunerabad	1	220
South Central	Secunderabad	1	592	48 Hyderabad	1	220
				49 Vijaywada	1	220
				50 Guntakal	1	220
				51 Nanded	1	220
				52 Guntur	1	220

South East Central Railway	Bilaspur	1	592	53	Bilaspur	1	220
				54	Nagpur	1	220
				55	Rajpur	1	220
14 South Western	Hubli	1	592	56	Hubli	1	220
				57	Bangalore	1	220
				58	Mysore	1	220
15 Western Railway	Mumbai Churchgate	1	592	59	Mumbai	2	440
				60	Vadodara	1	220
				61	Ratlam	1	220
				62	Rajkot	1	220
				63	Bhavnagar	1	220
				64	Ahemdabad	1	220
16 West Central Railway	Jabalpur	1	592	65	Bhopal	1	220
				66	Jabalpur	1	220
				67	Kota	1	220
					Sub Total	79	17380
17 Metro	Kolkata	1	592	Production Unit			0
18 CORE	Allahabad	1	590	1	CLW	1	220
				2	DCW	1	220
				3	DLW	1	220
				4	ICF	1	220
				5	RCF	1	220
				6	W&A Plant	1	220
					Sub Total	6	1320
				Centralized Training Institute			0
				1	IRICEN	1	220
				2	IRIEEN	1	220
				3	IRIMEE	1	220
				4	IRISET	1	220
				5	RSC	1	220
					Sub Total	5	1100
<b>Total No of equipment for Zonal exchanges</b>		<b>18</b>	<b>10652</b>		<b>Total No of equipment for Divisional/PSU exchanges</b>	<b>90</b>	<b>19800</b>

1 Total IP DSLAMs for Zonal Hd Qtrs 18  
2 Total IP DSLAMs for Division 79  
3 Production Unit 6  
4 Centralised training Institute 5

## IP Planning of DSLAM for Indian Railways

IP addresses have been divided into four regions as under.

SINo	Regions	From	To	Interface address pool
1	North Region	10.60.0.0/16	10.68.0.0/16	10.69.0.0/16
2	Eastern Region	10.70.0.0/16	10.78.0.0/16	10.79.0.0/16
3	Western Region	10.80.0.0/16	10.88.0.0/16	10.89.0.0/16
4	Southern Region	10.90.0.0/16	10.98.0.0/16	10.99.0.0/16

S.No.	RLY.	Divn.	Category I	Category II	Category III
1	NR		10.60.0.0/19	10.62.0.0/19	10.64.0.0/19
	HQR.		10.60.0.0/22	10.62.0.0/22	10.64.0.0/22
		UMB	10.60.5.0/24	10.62.5.0/24	10.64.5.0/24
		DLI	10.60.6.0/24	10.62.6.0/24	10.64.6.0/24
			10.60.7.0/24	10.62.7.0/24	10.64.7.0/24
			10.60.8.0/24	10.62.8.0/24	10.64.8.0/24
			10.60.9.0/24	10.62.9.0/24	10.64.9.0/24
		FZR	10.60.10.0/24	10.62.10.0/24	10.64.10.0/24
		LKO	10.60.11.0/24	10.62.11.0/24	10.64.11.0/24
			10.60.12.0/24	10.62.12.0/24	10.64.12.0/24
		MB	10.60.13.0/24	10.62.13.0/24	10.64.13.0/24
		DCW	10.60.14.0/24	10.62.14.0/24	10.64.14.0/24
		RCF	10.60.15.0/24	10.62.15.0/24	10.64.15.0/24
2	NER		10.60.32.0/19	10.62.32.0/19	10.64.32.0/19
	HQR.		10.60.32.0/22	10.62.32.0/22	10.64.32.0/22
		LJN	10.60.36.0/24	10.62.36.0/24	10.64.36.0/24
		BSB	10.60.37.0/24	10.62.37.0/24	10.64.37.0/24
		IZN	10.60.38.0/24	10.62.38.0/24	10.64.38.0/24
		DLW	10.60.39.0/24	10.62.39.0/24	10.64.39.0/24
3	NCR		10.60.64.0/19	10.62.64.0/19	10.64.64.0/19
	HQR.		10.60.64.0/22	10.62.64.0/22	10.64.64.0/22
		ALD	10.60.68.0/24	10.62.68.0/24	10.64.68.0/24
		AGC	10.60.69.0/24	10.62.69.0/24	10.64.69.0/24
		JHS	10.60.70.0/24	10.62.70.0/24	10.64.70.0/24
		RBL	10.60.71.0/24	10.62.71.0/24	10.64.71.0/24
4	CORE		10.60.96.0/19	10.62.96.0/19	10.64.96.0/19
	HQR.	ALD	10.60.96.0/22	10.62.96.0/22	10.64.96.0/22
5	NWR		10.60.128.0/19	10.62.128.0/19	10.64.128.0/19
	HQR.		10.60.128.0/22	10.62.128.0/22	10.64.128.0/22
		AJI	10.60.132.0/24	10.62.132.0/24	10.64.132.0/24

		JP	10.60.133.0/24	10.62.133.0/24	10.64.133.0/24
		JU	10.60.134.0/24	10.62.134.0/24	10.64.134.0/24
		BKN	10.60.135.0/24	10.62.135.0/24	10.64.135.0/24
6	ER		<b>10.70.0.0/19</b>	<b>10.72.0.0/19</b>	<b>10.74.0.0/19</b>
	HQR.		10.70.0.0/22	10.72.0.0/22	10.74.0.0/22
		HWH	10.70.4.0/24	10.72.4.0/24	10.74.4.0/24
			10.70.5.0/24	10.72.5.0/24	10.74.5.0/24
			<b>10.70.6.0/24</b>	<b>10.72.6.0/24</b>	<b>10.74.6.0/24</b>
			10.70.7.0/24	10.72.7.0/24	10.74.7.0/24
		SDAH	10.70.8.0/24	10.72.8.0/24	10.74.8.0/24
		ASN	10.70.9.0/24	10.72.9.0/24	10.74.9.0/24
		MLDT	10.70.10.0/24	10.72.10.0/24	10.74.10.0/24
		CLW	10.70.11.0/24	10.72.11.0/24	10.74.11.0/24
		IRIMEE	10.70.12.0/24	10.72.12.0/24	10.74.12.0/24
7	ECR		<b>10.70.32.0/19</b>	<b>10.72.32.0/19</b>	<b>10.74.32.0/19</b>
	HQR.		10.70.32.0/22	10.72.32.0/22	10.74.32.0/22
		DNR	10.70.36.0/24	10.72.36.0/24	10.74.36.0/24
		DHN	10.70.37.0/24	10.72.37.0/24	10.74.37.0/24
		MGS	10.70.38.0/24	10.72.38.0/24	10.74.38.0/24
		SEE	10.70.39.0/24	10.72.39.0/24	10.74.39.0/24
		SPJ	10.70.40.0/24	10.72.40.0/24	10.74.40.0/24
8	SER		<b>10.70.64.0/19</b>	<b>10.72.64.0/19</b>	<b>10.74.64.0/19</b>
	HQR.		10.70.64.0/22	10.72.64.0/22	10.74.64.0/22
		ADA	10.70.68.0/24	10.72.68.0/24	10.74.68.0/24
		CKP	10.70.69.0/24	10.72.69.0/24	10.74.69.0/24
		KGP	10.70.70.0/24	10.72.70.0/24	10.74.70.0/24
		RNC	10.70.71.0/24	10.72.71.0/24	10.74.71.0/24
9	NFR		<b>10.70.96.0/19</b>	<b>10.72.96.0/19</b>	<b>10.74.96.0/19</b>
	HQR.		10.70.96.0/22	10.72.96.0/22	10.74.96.0/22
		TSK	10.70.100.0/24	10.72.100.0/24	10.74.100.0/24
		LMG	10.70.101.0/24	10.72.101.0/24	10.74.101.0/24
		RNY	10.70.102.0/24	10.72.102.0/24	10.74.102.0/24
		APDJ	10.70.103.0/24	10.72.103.0/24	10.74.103.0/24
		KIR	10.70.104.0/24	10.72.104.0/24	10.74.104.0/24
10	ECOR		<b>10.70.128.0/19</b>	<b>10.72.128.0/19</b>	<b>10.74.128.0/19</b>
	HQR.		10.70.128.0/22	10.72.128.0/22	10.74.128.0/22
		KUR	10.70.132.0/24	10.72.132.0/24	10.74.132.0/24
		SBP	10.70.133.0/24	10.72.133.0/24	10.74.133.0/24
		WAT	10.70.134.0/24	10.72.134.0/24	10.74.134.0/24
11	SECR		<b>10.70.160.0/19</b>	<b>10.72.160.0/19</b>	<b>10.74.160.0/19</b>
	HQR.		10.70.160.0/22	10.72.160.0/22	10.74.160.0/22
		BSP	10.70.164.0/24	10.72.164.0/24	10.74.164.0/24
		NGP	10.70.165.0/24	10.72.165.0/24	10.74.165.0/24
		R	10.70.166.0/24	10.72.166.0/24	10.74.166.0/24

12	METRO		<b>10.70.192.0/19</b>	<b>10.72.192.0/19</b>	<b>10.74.192.0/19</b>
	HQR.	KOLKATA	10.70.192.0/22	10.72.192.0/22	10.74.192.0/22
13	CR		<b>10.80.0.0/19</b>	<b>10.82.0.0/19</b>	<b>10.84.0.0/19</b>
	HQR.		10.80.0.0/22	10.82.0.0/22	10.84.0.0/22
		CSTM	10.80.4.0/24	10.82.4.0/24	10.84.4.0/24
			10.80.5.0/24	10.82.5.0/24	10.84.5.0/24
			10.80.6.0/24	10.82.6.0/24	10.84.6.0/24
			10.80.7.0/24	10.82.7.0/24	10.84.7.0/24
		SUR	10.80.8.0/24	10.82.8.0/24	10.84.8.0/24
		NGP	10.80.9.0/24	10.82.9.0/24	10.84.9.0/24
		BSL	10.80.10.0/24	10.82.10.0/24	10.84.10.0/24
		PUNE	10.80.11.0/24	10.82.11.0/24	10.84.11.0/24
		IRICEN	10.80.12.0/24	10.82.12.0/24	10.84.12.0/24
		IRIEEN	10.80.13.0/24	10.82.13.0/24	10.84.13.0/24
14	WR		<b>10.80.32.0/19</b>	<b>10.82.32.0/19</b>	<b>10.84.32.0/19</b>
	HQR.		10.80.32.0/22	10.82.32.0/22	10.84.32.0/22
		BCT	10.80.36.0/24	10.82.36.0/24	10.84.36.0/24
			10.80.37.0/24	10.82.37.0/24	10.84.37.0/24
			10.80.38.0/24	10.82.38.0/24	10.84.38.0/24
			10.80.39.0/24	10.82.39.0/24	10.84.39.0/24
		BRC	10.80.40.0/24	10.82.40.0/24	10.84.40.0/24
		RJT	10.80.41.0/24	10.82.41.0/24	10.84.41.0/24
		BVC	10.80.42.0/24	10.82.42.0/24	10.84.42.0/24
		ADI	10.80.43.0/24	10.82.43.0/24	10.84.43.0/24
		RSC	10.80.44.0/24	10.82.44.0/24	10.84.44.0/24
15	WCR		<b>10.80.64.0/19</b>	<b>10.82.64.0/19</b>	<b>10.84.64.0/19</b>
	HQR.		10.80.64.0/22	10.82.64.0/22	10.84.64.0/22
		BPL	10.80.68.0/24	10.82.68.0/24	10.84.68.0/24
		JBP	10.80.69.0/24	10.82.69.0/24	10.84.69.0/24
		KTT	10.80.70.0/24	10.82.70.0/24	10.84.70.0/24
16	SR		<b>10.90.0.0/19</b>	<b>10.92.0.0/19</b>	<b>10.94.0.0/19</b>
	HQR.		10.90.0.0/22	10.92.0.0/22	10.94.0.0/22
		MAS	10.90.4.0/24	10.92.4.0/24	10.94.4.0/24
			10.90.5.0/24	10.92.5.0/24	10.94.5.0/24
			10.90.6.0/24	10.92.6.0/24	10.94.6.0/24
			10.90.7.0/24	10.92.7.0/24	10.94.7.0/24
		MDU	10.90.8.0/24	10.92.8.0/24	10.94.8.0/24
		TPJ	10.90.9.0/24	10.92.9.0/24	10.94.9.0/24
		PGT	10.90.10.0/24	10.92.10.0/24	10.94.10.0/24
		TVC	10.90.11.0/24	10.92.11.0/24	10.94.11.0/24
		SA	10.90.12.0/24	10.92.12.0/24	10.94.12.0/24
		ICF	10.90.13.0/24	10.92.13.0/24	10.94.13.0/24
17	SCR		<b>10.90.32.0/19</b>	<b>10.92.32.0/19</b>	<b>10.94.32.0/19</b>
	HQR.		10.90.32.0/22	10.92.32.0/22	10.94.32.0/22
		SC	10.90.36.0/24	10.92.36.0/24	10.94.36.0/24

		HYB	10.90.37.0/24	10.92.37.0/24	10.94.37.0/24
		BZA	10.90.38.0/24	10.92.38.0/24	10.94.38.0/24
		GTL	10.90.39.0/24	10.92.39.0/24	10.94.39.0/24
		NED	10.90.40.0/24	10.92.40.0/24	10.94.40.0/24
		GTN	10.90.41.0/24	10.92.41.0/24	10.94.41.0/24
		IRISET	10.90.42.0/24	10.92.42.0/24	10.94.42.0/24
18	SWR		<b>10.90.64.0/19</b>	<b>10.92.64.0/19</b>	<b>10.94.64.0/19</b>
	HQR.		10.90.64.0/22	10.92.64.0/22	10.94.64.0/22
		UBL	10.90.68.0/24	10.92.68.0/24	10.94.68.0/24
		SBC	10.90.69.0/24	10.92.69.0/24	10.94.69.0/24
		MYS	10.90.69.0/24	10.92.69.0/24	10.94.69.0/24
		WAP	10.90.70.0/24	10.92.70.0/24	10.94.70.0/24