



Projeto de Encaminhamento de Dados

Encaminhamento de Dados 2021/2022

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Relatório no âmbito da Licenciatura em Engenharia Informática para o Trabalho Prático desenvolvido
para a unidade curricular de Encaminhamento de Dados

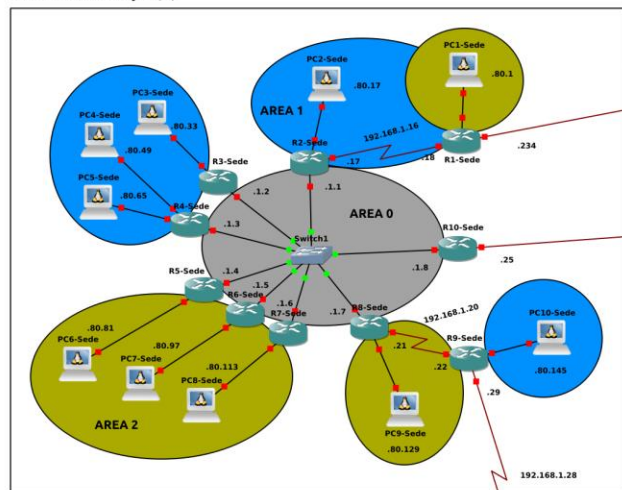
Licenciatura em Engenharia Informática

Curso Engenharia Informática

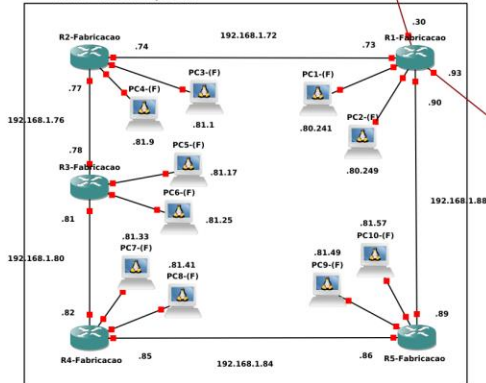
Ramo de Redes e Administração de Sistemas

1. Topologia do Trabalho Prático

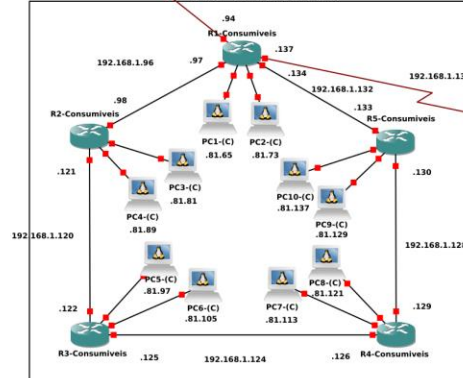
Sede - Administração (A)



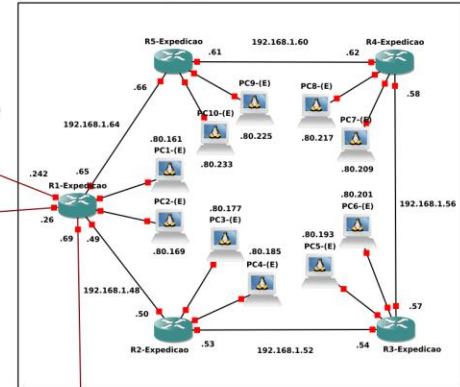
FILIAL - FABRICAÇÃO (F)



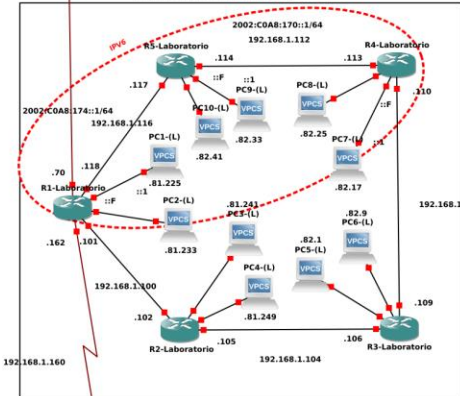
FILIAL - CONSUMÍVEIS (C)



FILIAL - EXPEDIÇÃO (E)



FILIAL - LABORATÓRIO (L)



FILIAL - RESÍDUOS (R)

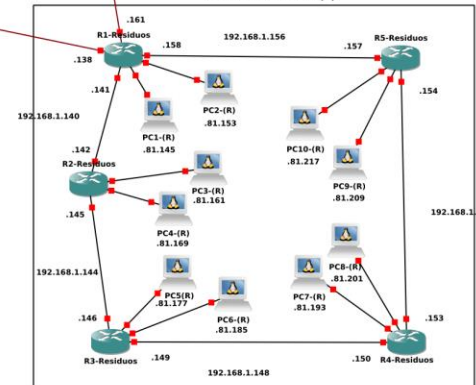


Figura 1 - Topologia

Este trabalho prático foi feito no GNS3 na máquina virtual usada nas aulas práticas (Linux Mint).

Imagens utilizadas para os routers: IOU "i86bi-linux22-l3-adventerprisek9-15.4.1T.bin".

Imagens utilizadas pra os switches: IOU "i86bi_linux_l2-ipbasek9-ms.may8-2013-team_track".

Configurações

Em todos os routers foi criado uma *enable password*. A *password* é "cisco". Neste trabalho prático todas as *passwords* existentes nos routers são iguais: "cisco".

Mapa de Endereçamento

	LAN	Máscara	Network	Primeiro	Último	Broadcast	
SEDE	Rede Area0	255.255.255.240	192.168.1.0	192.168.1.1	192.168.1.14	192.168.1.15	/28
	R1 - R2	255.255.255.252	192.168.1.16	192.168.1.17	192.168.1.18	192.168.1.19	/30
	R8 - R9	255.255.255.252	192.168.1.20	192.168.1.21	192.168.1.22	192.168.1.23	/30
	R10 - R1(E)	255.255.255.252	192.168.1.24	192.168.1.25	192.168.1.26	192.168.1.27	/30
	R9 - R1(F)	255.255.255.252	192.168.1.28	192.168.1.29	192.168.1.30	192.168.1.31	/30
	R6 e0/1	255.255.255.252	192.168.1.20	192.168.1.21	192.168.1.22	192.168.1.23	/30
	R7 e0/1	255.255.255.252	192.168.1.24	192.168.1.25	192.168.1.26	192.168.1.27	/30
	R8 e0/1	255.255.255.252	192.168.1.28	192.168.1.29	192.168.1.30	192.168.1.31	/30
	R8 - R9	255.255.255.252	192.168.1.32	192.168.1.33	192.168.1.34	192.168.1.35	/30
	R9 - R1(F)	255.255.255.252	192.168.1.36	192.168.1.37	192.168.1.38	192.168.1.39	/30
	R10 e0/0	255.255.255.252	192.168.1.40	192.168.1.41	192.168.1.42	192.168.1.43	/30
	R10 - R1(E)	255.255.255.252	192.168.1.44	192.168.1.45	192.168.1.46	192.168.1.47	/30

	LAN	Máscara	Network	Primeiro	Último	Broadcast	
EXPEDICAO	R1 - R2	255.255.255.252	192.168.1.48	192.168.1.49	192.168.1.50	192.168.1.51	/30
	R2 - R3	255.255.255.252	192.168.1.52	192.168.1.53	192.168.1.54	192.168.1.55	/30
	R3 - R4	255.255.255.252	192.168.1.56	192.168.1.57	192.168.1.58	192.168.1.59	/30
	R4 - R5	255.255.255.252	192.168.1.60	192.168.1.61	192.168.1.62	192.168.1.63	/30
	R5 - R1	255.255.255.252	192.168.1.64	192.168.1.65	192.168.1.66	192.168.1.67	/30
	R1 - R1(L)	255.255.255.252	192.168.1.68	192.168.1.69	192.168.1.70	192.168.1.71	/30

	LAN	Máscara	Network	Primeiro	Último	Broadcast	
FABRICACAO	R1 - R2	255.255.255.252	192.168.1.72	192.168.1.73	192.168.1.74	192.168.1.75	/30
	R2 - R3	255.255.255.252	192.168.1.76	192.168.1.77	192.168.1.78	192.168.1.79	/30
	R3 - R4	255.255.255.252	192.168.1.80	192.168.1.81	192.168.1.82	192.168.1.83	/30
	R4 - R5	255.255.255.252	192.168.1.84	192.168.1.85	192.168.1.86	192.168.1.87	/30
	R5 - R1	255.255.255.252	192.168.1.88	192.168.1.89	192.168.1.90	192.168.1.91	/30
	R1 - R1(C)	255.255.255.252	192.168.1.92	192.168.1.93	192.168.1.94	192.168.1.95	/30

	LAN	Máscara	Network	Primeiro	Último	Broadcast	
CONSUMIVEIS	R1 - R2	255.255.255.252	192.168.1.96	192.168.1.97	192.168.1.98	192.168.1.99	/30
	R2 - R3	255.255.255.252	192.168.1.120	192.168.1.121	192.168.1.122	192.168.1.123	/30
	R3 - R4	255.255.255.252	192.168.1.124	192.168.1.125	192.168.1.126	192.168.1.127	/30
	R4 - R5	255.255.255.252	192.168.1.128	192.168.1.129	192.168.1.130	192.168.1.131	/30
	R5 - R1	255.255.255.252	192.168.1.132	192.168.1.133	192.168.1.134	192.168.1.135	/30
	R1 - R1(R)	255.255.255.252	192.168.1.136	192.168.1.137	192.168.1.138	192.168.1.139	/30

	LAN	Máscara	Network	Primeiro	Último	Broadcast	
RESIDUOS	R1 - R2	255.255.255.252	192.168.1.140	192.168.1.141	192.168.1.142	192.168.1.143	/30
	R2 - R3	255.255.255.252	192.168.1.144	192.168.1.145	192.168.1.146	192.168.1.147	/30
	R3 - R4	255.255.255.252	192.168.1.148	192.168.1.149	192.168.1.150	192.168.1.151	/30
	R4 - R5	255.255.255.252	192.168.1.152	192.168.1.153	192.168.1.154	192.168.1.155	/30
	R5 - R1	255.255.255.252	192.168.1.156	192.168.1.157	192.168.1.158	192.168.1.159	/30
	R1 - R1(L)	255.255.255.252	192.168.1.160	192.168.1.161	192.168.1.162	192.168.1.163	/30

	LAN	Máscara	Network	Primeiro	Último	Broadcast	
LABORATORIO	R1 - R2	255.255.255.252	192.168.1.100	192.168.1.101	192.168.1.102	192.168.1.103	/30
	R2 - R3	255.255.255.252	192.168.1.104	192.168.1.105	192.168.1.106	192.168.1.107	/30
	R3 - R4	255.255.255.252	192.168.1.108	192.168.1.109	192.168.1.110	192.168.1.111	/30
	R4 - R5	255.255.255.252	192.168.1.112	192.168.1.113	192.168.1.114	192.168.1.115	/30
	R5 - R1	255.255.255.252	192.168.1.116	192.168.1.117	192.168.1.118	192.168.1.119	/30
	LAN	Máscara	Network	Primeiro	Último	Broadcast	
ISP	R1 - R1 Coimbra	255.255.255.252	10.10.89.240	10.10.89.242	10.10.89.241	10.10.89.243	/30
	R1 - Lisboa	255.255.255.252	10.20.89.225	10.20.89.226	10.20.89.227	10.20.89.228	/30

	LAN	Máscara	NETWORK	PRIMEIRO	ULTIMO	BROADCAST
SEDE /28	R1-PC1	255.255.255.240	194.65.80.0	194.65.80.1	194.65.80.14	194.65.80.15
	R2-PC2	255.255.255.240	194.65.80.16	194.65.80.17	194.65.80.30	194.65.80.31
	R3-PC3	255.255.255.240	194.65.80.32	194.65.80.33	194.65.80.46	194.65.80.47
	R4-PC4	255.255.255.240	194.65.80.48	194.65.80.49	194.65.80.62	194.65.80.63
	R4-PC5	255.255.255.240	194.65.80.64	194.65.80.65	194.65.80.78	194.65.80.79
	R5-PC6	255.255.255.240	194.65.80.80	194.65.80.81	194.65.80.94	194.65.80.95
	R6-PC7	255.255.255.240	194.65.80.96	194.65.80.97	194.65.80.110	194.65.80.111
	R7-PC8	255.255.255.240	194.65.80.112	194.65.80.113	194.65.80.126	194.65.80.127
	R8-PC9	255.255.255.240	194.65.80.128	194.65.80.129	194.65.80.142	194.65.80.143
	R9-PC10	255.255.255.240	194.65.80.144	194.65.80.145	194.65.80.158	194.65.80.159
EXPEDICAO /29	R1-PC1	255.255.255.248	194.65.80.160	194.65.80.161	194.65.80.166	194.65.80.167
	R1-PC2	255.255.255.248	194.65.80.168	194.65.80.169	194.65.80.174	194.65.80.175
	R2-PC3	255.255.255.248	194.65.80.176	194.65.80.177	194.65.80.182	194.65.80.183
	R2-PC4	255.255.255.248	194.65.80.184	194.65.80.185	194.65.80.190	194.65.80.191
	R3-PC5	255.255.255.248	194.65.80.192	194.65.80.193	194.65.80.198	194.65.80.199
	R3-PC6	255.255.255.248	194.65.80.200	194.65.80.201	194.65.80.206	194.65.80.207
	R4-PC7	255.255.255.248	194.65.80.208	194.65.80.209	194.65.80.214	194.65.80.215
	R4-PC8	255.255.255.248	194.65.80.216	194.65.80.217	194.65.80.222	194.65.80.223
	R5-PC9	255.255.255.248	194.65.80.224	194.65.80.225	194.65.80.230	194.65.80.231
	R5-PC10	255.255.255.248	194.65.80.232	194.65.80.233	194.65.80.238	194.65.80.239
FABRICACAO /29	R1-PC1	255.255.255.248	194.65.80.240	194.65.80.241	194.65.80.246	194.65.80.247
	R1-PC2	255.255.255.248	194.65.80.248	194.65.80.249	194.65.80.254	194.65.80.255
	R2-PC3	255.255.255.248	194.65.81.0	194.65.81.1	194.65.81.6	194.65.81.7
	R2-PC4	255.255.255.248	194.65.81.8	194.65.81.9	194.65.81.14	194.65.81.15
	R3-PC5	255.255.255.248	194.65.81.16	194.65.81.17	194.65.81.22	194.65.81.23
	R3-PC6	255.255.255.248	194.65.81.24	194.65.81.25	194.65.81.30	194.65.81.31
	R4-PC7	255.255.255.248	194.65.81.32	194.65.81.33	194.65.81.38	194.65.81.39
	R4-PC8	255.255.255.248	194.65.81.40	194.65.81.41	194.65.81.46	194.65.81.47
	R5-PC9	255.255.255.248	194.65.81.48	194.65.81.49	194.65.81.54	194.65.81.55
	R5-PC10	255.255.255.248	194.65.81.56	194.65.81.57	194.65.81.62	194.65.81.63
CONSUMIVEIS /29	R1-PC1	255.255.255.248	194.65.81.64	194.65.81.65	194.65.81.70	194.65.81.71
	R1-PC2	255.255.255.248	194.65.81.72	194.65.81.73	194.65.81.78	194.65.81.79
	R2-PC3	255.255.255.248	194.65.81.80	194.65.81.81	194.65.81.86	194.65.81.87
	R2-PC4	255.255.255.248	194.65.81.88	194.65.81.89	194.65.81.94	194.65.81.95
	R3-PC5	255.255.255.248	194.65.81.96	194.65.81.97	194.65.81.102	194.65.81.103
	R3-PC6	255.255.255.248	194.65.81.104	194.65.81.105	194.65.81.110	194.65.81.111
	R4-PC7	255.255.255.248	194.65.81.112	194.65.81.113	194.65.81.118	194.65.81.119
	R4-PC8	255.255.255.248	194.65.81.120	194.65.81.121	194.65.81.126	194.65.81.127
	R1-PC1	255.255.255.248	194.65.81.144	194.65.81.145	194.65.81.150	194.65.81.151
	R1-PC2	255.255.255.248	194.65.81.152	194.65.81.153	194.65.81.158	194.65.81.159
RESIDUOS /29	R2-PC3	255.255.255.248	194.65.81.160	194.65.81.161	194.65.81.166	194.65.81.167
	R2-PC4	255.255.255.248	194.65.81.168	194.65.81.169	194.65.81.174	194.65.81.175
	R3-PC5	255.255.255.248	194.65.81.176	194.65.81.177	194.65.81.182	194.65.81.183
	R3-PC6	255.255.255.248	194.65.81.184	194.65.81.185	194.65.81.190	194.65.81.191
	R4-PC7	255.255.255.248	194.65.81.192	194.65.81.193	194.65.81.198	194.65.81.199
	R4-PC8	255.255.255.248	194.65.81.200	194.65.81.201	194.65.81.206	194.65.81.207
	R5-PC9	255.255.255.248	194.65.81.208	194.65.81.209	194.65.81.214	194.65.81.215
	R5-PC10	255.255.255.248	194.65.81.216	194.65.81.217	194.65.81.222	194.65.81.223
	R1-PC1	255.255.255.248	194.65.81.224	194.65.81.225	194.65.81.230	194.65.81.231
	R1-PC2	255.255.255.248	194.65.81.232	194.65.81.233	194.65.81.238	194.65.81.239
LABORATORIO /29	R2-PC3	255.255.255.248	194.65.81.240	194.65.81.241	194.65.81.246	194.65.81.247
	R2-PC4	255.255.255.248	194.65.81.248	194.65.81.249	194.65.81.254	194.65.81.255
	R3-PC5	255.255.255.248	194.65.82.0	194.65.82.1	194.65.82.6	194.65.82.7
	R3-PC6	255.255.255.248	194.65.82.8	194.65.82.9	194.65.82.14	194.65.82.15
	R4-PC7	255.255.255.248	194.65.82.16	194.65.82.17	194.65.82.22	194.65.82.23
	R4-PC8	255.255.255.248	194.65.82.24	194.65.82.25	194.65.82.30	194.65.82.31
	R5-PC9	255.255.255.248	194.65.82.32	194.65.82.33	194.65.82.38	194.65.82.39
	R5-PC10	255.255.255.248	194.65.82.40	194.65.82.41	194.65.82.46	194.65.82.47

Protocolos de Encaminhamento Usados

Neste trabalho prático foi usado 3 protocolos de encaminhamento. OSPF na Administração (sede), onde foi criado 3 áreas com 2 links virtuais. RIP (*version 2*) na Expedição, EIGRP na Fabricação, Consumíveis e Laboratório onde neste esta presente também o IPV6. Na presente topologia em todos os routers onde tinham ligações a um terminal foi colocado o comando *passive-interface* nas portas.

Em todos os routers foi colocado autenticação MD5, uma chave e também um *banner* de identificação. Coloquei também o comando *no auto-summary* em cada protocolo para evitar rotas *classfull* e adicionei as *discard routes* para a criação das rotas *Null0*.

A ligação primária está definida para 1Gbps e a ligação secundária para 50Mbps e as ligações entre filiais têm uma ligação de 100Mbps.

No router R1-Fabricação existe a *prefix-list* onde nega anúncios EIGRP vindos do router R5-Fabricação.

Na filial Laboratório criei IPV6 nos routers 1, 4 e 5 assim como os VPCS adicionados a esses routers têm um endereço IPV6. O IPV6 foi implementado com túneis dinâmicos.

Tabelas de Encaminhamento

- R1-Sede:

✓ R1-Sede ✕	194.65.80.0/24 is variably subnetted, 24 subnets, 4 masks
S* 0.0.0.0/0 is directly connected, Serial2/1	O E2 194.65.80.0/24 [110/5000] via 192.168.1.17, 00:04:24, Serial2/0
10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks	C 194.65.80.0/28 is directly connected, Ethernet0/0
C 10.100.89.232/30 is directly connected, Serial2/1	L 194.65.80.14/32 is directly connected, Ethernet0/0
L 10.100.89.234/32 is directly connected, Serial2/1	O 194.65.80.16/28 [110/74] via 192.168.1.17, 00:22:10, Serial2/0
192.168.1.0/24 is variably subnetted, 36 subnets, 4 masks	O IA 194.65.80.32/28 [110/84] via 192.168.1.17, 00:22:00, Serial2/0
O E2 192.168.1.0/24 [110/5000] via 192.168.1.17, 00:04:03, Serial2/0	O IA 194.65.80.48/28 [110/84] via 192.168.1.17, 00:22:00, Serial2/0
O 192.168.1.0/28 [110/74] via 192.168.1.17, 00:22:00, Serial2/0	O IA 194.65.80.64/28 [110/84] via 192.168.1.17, 00:22:00, Serial2/0
C 192.168.1.16/30 is directly connected, Serial2/0	O IA 194.65.80.80/28 [110/84] via 192.168.1.17, 00:22:00, Serial2/0
L 192.168.1.18/32 is directly connected, Serial2/0	O IA 194.65.80.96/28 [110/84] via 192.168.1.17, 00:22:00, Serial2/0
O IA 192.168.1.20/30 [110/138] via 192.168.1.17, 00:22:00, Serial2/0	O IA 194.65.80.112/28 [110/84] via 192.168.1.17, 00:22:00, Serial2/0
O E2 192.168.1.24/30 [110/20] via 192.168.1.17, 00:22:10, Serial2/0	O IA 194.65.80.128/28 [110/84] via 192.168.1.17, 00:22:00, Serial2/0
O E2 192.168.1.28/30 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	O IA 194.65.80.144/28 [110/148] via 192.168.1.17, 00:22:00, Serial2/0
O E2 192.168.1.48/30 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	O E2 194.65.80.160/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0
O E2 192.168.1.52/30 [110/5000] via 192.168.1.17, 00:21:51, Serial2/0	O E2 194.65.80.168/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0
O E2 192.168.1.56/30 [110/5000] via 192.168.1.17, 00:21:51, Serial2/0	O E2 194.65.80.176/29 [110/5000] via 192.168.1.17, 00:21:51, Serial2/0
O E2 192.168.1.60/30 [110/5000] via 192.168.1.17, 00:21:51, Serial2/0	O E2 194.65.80.184/29 [110/5000] via 192.168.1.17, 00:21:51, Serial2/0
O E2 192.168.1.64/30 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	O E2 194.65.80.192/29 [110/5000] via 192.168.1.17, 00:21:51, Serial2/0
O E2 192.168.1.68/30 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	O E2 194.65.80.200/29 [110/5000] via 192.168.1.17, 00:21:51, Serial2/0
O E2 192.168.1.72/30 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	O E2 194.65.80.208/29 [110/5000] via 192.168.1.17, 00:21:51, Serial2/0
O E2 192.168.1.76/30 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	O E2 194.65.80.216/29 [110/5000] via 192.168.1.17, 00:21:51, Serial2/0
O E2 192.168.1.80/30 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	O E2 194.65.80.224/29 [110/5000] via 192.168.1.17, 00:21:51, Serial2/0
O E2 192.168.1.84/30 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	O E2 194.65.80.232/29 [110/5000] via 192.168.1.17, 00:21:51, Serial2/0
O E2 192.168.1.88/30 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	
194.65.81.0/24 is variably subnetted, 31 subnets, 2 masks	194.65.82.0/24 is variably subnetted, 7 subnets, 2 masks
O E2 194.65.81.0/24 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	O E2 194.65.82.0/24 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0
O E2 194.65.81.0/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	O E2 194.65.82.0/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0
O E2 194.65.81.8/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	O E2 194.65.82.8/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0
O E2 194.65.81.16/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	O E2 194.65.82.16/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0
O E2 194.65.81.24/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	O E2 194.65.82.24/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0
O E2 194.65.81.32/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	O E2 194.65.82.32/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0
O E2 194.65.81.40/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	O E2 194.65.82.40/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0
O E2 194.65.81.64/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	
O E2 194.65.81.72/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	R1-Sede#
O E2 194.65.81.80/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	
O E2 194.65.81.88/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	
O E2 194.65.81.96/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	
O E2 194.65.81.104/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	
O E2 194.65.81.112/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	
O E2 194.65.81.120/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	
O E2 194.65.81.128/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	
O E2 194.65.81.136/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	
O E2 194.65.81.144/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	
O E2 194.65.81.152/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	
O E2 194.65.81.160/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	
O E2 194.65.81.168/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	
O E2 194.65.81.176/29 [110/5000] via 192.168.1.17, 00:22:10, Serial2/0	

• R1-Expedição:

R1-Expedicao		D	192.168.1.76/30 [90/9203] via 192.168.1.70, 00:07:06, Serial2/2
S* 0.0.0.0/0 is directly connected, Serial2/0		D	192.168.1.80/30 [90/9303] via 192.168.1.70, 00:07:06, Serial2/2
10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks		D	192.168.1.84/30 [90/9203] via 192.168.1.70, 00:07:06, Serial2/2
C 10.200.89.240/30 is directly connected, Serial2/0		D	192.168.1.88/30 [90/9103] via 192.168.1.70, 00:07:06, Serial2/2
L 10.200.89.242/32 is directly connected, Serial2/0		D	192.168.1.92/30 [90/8100] via 192.168.1.70, 00:07:06, Serial2/2
192.168.1.0/24 is variably subnetted, 39 subnets, 4 masks		D	192.168.1.96/30 [90/7103] via 192.168.1.70, 00:07:06, Serial2/2
S 192.168.1.0/24 is directly connected, Null0		D	192.168.1.100/30 [90/3103] via 192.168.1.70, 00:07:07, Serial2/2
R 192.168.1.0/28 [120/1] via 192.168.1.25, 00:00:11, Serial2/1		D	192.168.1.104/30 [90/3203] via 192.168.1.70, 00:07:07, Serial2/2
R 192.168.1.16/30 [120/10] via 192.168.1.25, 00:00:11, Serial2/1		D	192.168.1.108/30 [90/3303] via 192.168.1.70, 00:07:07, Serial2/2
R 192.168.1.20/30 [120/10] via 192.168.1.25, 00:00:11, Serial2/1		D	192.168.1.112/30 [90/3203] via 192.168.1.70, 00:07:07, Serial2/2
C 192.168.1.24/30 is directly connected, Serial2/1		D	192.168.1.116/30 [90/3103] via 192.168.1.70, 00:07:07, Serial2/2
L 192.168.1.26/32 is directly connected, Serial2/1		D	192.168.1.120/30 [90/7203] via 192.168.1.70, 00:07:06, Serial2/2
D 192.168.1.28/30 [90/10100] via 192.168.1.70, 00:07:06, Serial2/2		D	192.168.1.124/30 [90/7303] via 192.168.1.70, 00:07:06, Serial2/2
C 192.168.1.48/30 is directly connected, Ethernet0/1		D	192.168.1.128/30 [90/7203] via 192.168.1.70, 00:07:06, Serial2/2
L 192.168.1.49/32 is directly connected, Ethernet0/1		D	192.168.1.132/30 [90/7103] via 192.168.1.70, 00:07:06, Serial2/2
R 192.168.1.52/30 [120/1] via 192.168.1.50, 00:00:07, Ethernet0/1		D	192.168.1.136/30 [90/6100] via 192.168.1.70, 00:07:06, Serial2/2
R 192.168.1.56/30 [120/2] via 192.168.1.66, 00:00:04, Ethernet0/0		D	192.168.1.140/30 [90/5103] via 192.168.1.70, 00:07:06, Serial2/2
[120/2] via 192.168.1.50, 00:00:07, Ethernet0/1		D	192.168.1.144/30 [90/5203] via 192.168.1.70, 00:07:06, Serial2/2
R 192.168.1.60/30 [120/1] via 192.168.1.66, 00:00:04, Ethernet0/0		D	192.168.1.148/30 [90/5303] via 192.168.1.70, 00:07:06, Serial2/2
C 192.168.1.64/30 is directly connected, Ethernet0/0		D	192.168.1.152/30 [90/5203] via 192.168.1.70, 00:07:06, Serial2/2
L 192.168.1.65/32 is directly connected, Ethernet0/0		D	192.168.1.156/30 [90/5103] via 192.168.1.70, 00:07:06, Serial2/2
C 192.168.1.68/30 is directly connected, Serial2/2		D	192.168.1.160/30 [90/4100] via 192.168.1.70, 00:07:06, Serial2/2
L 192.168.1.69/32 is directly connected, Serial2/2		194.65.80.0/24 is variably subnetted, 25 subnets, 4 masks	
D 192.168.1.72/30 [90/9103] via 192.168.1.70, 00:07:06, Serial2/2			
194.65.80.0/24 is variably subnetted, 25 subnets, 4 masks		R	194.65.80.232/29 [120/1] via 192.168.1.66, 00:00:04, Ethernet0/0
S 194.65.80.0/24 is directly connected, Null0		D	194.65.80.240/29 [90/9103] via 192.168.1.70, 00:07:06, Serial2/2
R 194.65.80.0/28 [120/10] via 192.168.1.25, 00:00:11, Serial2/1		D	194.65.80.248/29 [90/9103] via 192.168.1.70, 00:07:06, Serial2/2
R 194.65.80.16/28 [120/10] via 192.168.1.25, 00:00:11, Serial2/1		194.65.81.0/24 is variably subnetted, 31 subnets, 2 masks	
R 194.65.80.32/28 [120/10] via 192.168.1.25, 00:00:11, Serial2/1			
R 194.65.80.48/28 [120/10] via 192.168.1.25, 00:00:11, Serial2/1		S	194.65.81.0/24 is directly connected, Null0
R 194.65.80.64/28 [120/10] via 192.168.1.25, 00:00:11, Serial2/1		D	194.65.81.0/29 [90/9203] via 192.168.1.70, 00:07:06, Serial2/2
R 194.65.80.80/28 [120/10] via 192.168.1.25, 00:00:11, Serial2/1		D	194.65.81.8/29 [90/9203] via 192.168.1.70, 00:07:06, Serial2/2
R 194.65.80.96/28 [120/10] via 192.168.1.25, 00:00:11, Serial2/1		D	194.65.81.16/29 [90/9303] via 192.168.1.70, 00:07:06, Serial2/2
R 194.65.80.112/28 [120/10] via 192.168.1.25, 00:00:11, Serial2/1		D	194.65.81.24/29 [90/9303] via 192.168.1.70, 00:07:06, Serial2/2
R 194.65.80.128/28 [120/10] via 192.168.1.25, 00:00:11, Serial2/1		D	194.65.81.32/29 [90/9303] via 192.168.1.70, 00:07:06, Serial2/2
R 194.65.80.144/28 [120/10] via 192.168.1.25, 00:00:11, Serial2/1		D	194.65.81.40/29 [90/9303] via 192.168.1.70, 00:07:06, Serial2/2
C 194.65.80.160/29 is directly connected, Ethernet0/2		D	194.65.81.64/29 [90/7103] via 192.168.1.70, 00:07:06, Serial2/2
L 194.65.80.166/32 is directly connected, Ethernet0/2		D	194.65.81.72/29 [90/7103] via 192.168.1.70, 00:07:06, Serial2/2
C 194.65.80.168/29 is directly connected, Ethernet0/3		D	194.65.81.80/29 [90/7203] via 192.168.1.70, 00:07:06, Serial2/2
L 194.65.80.174/32 is directly connected, Ethernet0/3		D	194.65.81.88/29 [90/7203] via 192.168.1.70, 00:07:06, Serial2/2
R 194.65.80.176/29 [120/1] via 192.168.1.50, 00:00:07, Ethernet0/1		D	194.65.81.96/29 [90/7303] via 192.168.1.70, 00:07:06, Serial2/2
R 194.65.80.184/29 [120/1] via 192.168.1.50, 00:00:07, Ethernet0/1		D	194.65.81.104/29 [90/7303] via 192.168.1.70, 00:07:06, Serial2/2
R 194.65.80.192/29 [120/2] via 192.168.1.50, 00:00:07, Ethernet0/1		D	194.65.81.112/29 [90/7303] via 192.168.1.70, 00:07:06, Serial2/2
R 194.65.80.200/29 [120/2] via 192.168.1.50, 00:00:07, Ethernet0/1		D	194.65.81.120/29 [90/7303] via 192.168.1.70, 00:07:06, Serial2/2
R 194.65.80.208/29 [120/2] via 192.168.1.66, 00:00:04, Ethernet0/0		D	194.65.81.128/29 [90/7203] via 192.168.1.70, 00:07:06, Serial2/2
R 194.65.80.216/29 [120/2] via 192.168.1.66, 00:00:04, Ethernet0/0		D	194.65.81.136/29 [90/7203] via 192.168.1.70, 00:07:06, Serial2/2
R 194.65.80.224/29 [120/1] via 192.168.1.66, 00:00:04, Ethernet0/0		D	194.65.81.144/29 [90/5103] via 192.168.1.70, 00:07:06, Serial2/2
		D	194.65.81.152/29 [90/5103] via 192.168.1.70, 00:07:06, Serial2/2
D 194.65.81.160/29 [90/5203] via 192.168.1.70, 00:07:06, Serial2/2			
D 194.65.81.168/29 [90/5203] via 192.168.1.70, 00:07:06, Serial2/2			
D 194.65.81.176/29 [90/5303] via 192.168.1.70, 00:07:06, Serial2/2			
D 194.65.81.184/29 [90/5303] via 192.168.1.70, 00:07:06, Serial2/2			
D 194.65.81.192/29 [90/5303] via 192.168.1.70, 00:07:06, Serial2/2			
D 194.65.81.200/29 [90/5303] via 192.168.1.70, 00:07:06, Serial2/2			
D 194.65.81.208/29 [90/5203] via 192.168.1.70, 00:07:06, Serial2/2			
D 194.65.81.216/29 [90/5203] via 192.168.1.70, 00:07:06, Serial2/2			
D 194.65.81.224/29 [90/3103] via 192.168.1.70, 00:07:07, Serial2/2			
D 194.65.81.232/29 [90/3103] via 192.168.1.70, 00:07:07, Serial2/2			
D 194.65.81.240/29 [90/3203] via 192.168.1.70, 00:07:07, Serial2/2			
D 194.65.81.248/29 [90/3203] via 192.168.1.70, 00:07:07, Serial2/2			
194.65.82.0/24 is variably subnetted, 7 subnets, 2 masks			
S 194.65.82.0/24 is directly connected, Null0			
D 194.65.82.0/29 [90/3303] via 192.168.1.70, 00:07:07, Serial2/2			
D 194.65.82.8/29 [90/3303] via 192.168.1.70, 00:07:07, Serial2/2			
D 194.65.82.16/29 [90/3303] via 192.168.1.70, 00:07:07, Serial2/2			
D 194.65.82.24/29 [90/3303] via 192.168.1.70, 00:07:07, Serial2/2			
D 194.65.82.32/29 [90/3203] via 192.168.1.70, 00:07:07, Serial2/2			
D 194.65.82.40/29 [90/3203] via 192.168.1.70, 00:07:07, Serial2/2			
R1-Expedicao#			

- R1-Laboratório:

R1-Laboratorio ✕		
D*EX	0.0.0.0/0 [170/4200] via 192.168.1.69, 00:04:31, Serial2/1	
	192.168.1.0/24 is variably subnetted, 39 subnets, 4 masks	
S	192.168.1.0/24 is directly connected, Null0	
D EX	192.168.1.0/28 [170/4003] via 192.168.1.69, 00:11:32, Serial2/1	
D EX	192.168.1.16/30 [170/4003] via 192.168.1.69, 00:11:32, Serial2/1	
D EX	192.168.1.20/30 [170/4003] via 192.168.1.69, 00:11:32, Serial2/1	
D EX	192.168.1.24/30 [170/4003] via 192.168.1.69, 00:11:32, Serial2/1	
D	192.168.1.28/30 [90/8100] via 192.168.1.161, 00:11:32, Serial2/0	
D EX	192.168.1.48/30 [170/4003] via 192.168.1.69, 00:11:32, Serial2/1	
D EX	192.168.1.52/30 [170/4003] via 192.168.1.69, 00:11:24, Serial2/1	
D EX	192.168.1.56/30 [170/4003] via 192.168.1.69, 00:11:28, Serial2/1	
D EX	192.168.1.60/30 [170/4003] via 192.168.1.69, 00:11:28, Serial2/1	
D EX	192.168.1.64/30 [170/4003] via 192.168.1.69, 00:11:32, Serial2/1	
C	192.168.1.68/30 is directly connected, Serial2/1	
L	192.168.1.70/32 is directly connected, Serial2/1	
D	192.168.1.72/30 [90/7103] via 192.168.1.161, 00:11:32, Serial2/0	
D	192.168.1.76/30 [90/7203] via 192.168.1.161, 00:11:32, Serial2/0	
D	192.168.1.80/30 [90/7303] via 192.168.1.161, 00:11:32, Serial2/0	
D	192.168.1.84/30 [90/7203] via 192.168.1.161, 00:11:32, Serial2/0	
D	192.168.1.88/30 [90/7103] via 192.168.1.161, 00:11:32, Serial2/0	
D	192.168.1.92/30 [90/6100] via 192.168.1.161, 00:11:32, Serial2/0	
D	192.168.1.96/30 [90/5103] via 192.168.1.161, 00:12:20, Serial2/0	
C	192.168.1.100/30 is directly connected, Ethernet0/1	
	194.65.81.0/24 is variably subnetted, 33 subnets, 3 masks	
S	194.65.81.0/24 is directly connected, Null0	
D	194.65.81.0/29 [90/7203] via 192.168.1.161, 00:11:32, Serial2/0	
D	194.65.81.8/29 [90/7203] via 192.168.1.161, 00:11:32, Serial2/0	
D	194.65.81.16/29 [90/7303] via 192.168.1.161, 00:11:32, Serial2/0	
D	194.65.81.24/29 [90/7303] via 192.168.1.161, 00:12:20, Serial2/0	
D	194.65.81.32/29 [90/7303] via 192.168.1.161, 00:12:20, Serial2/0	
D	194.65.81.40/29 [90/7303] via 192.168.1.161, 00:12:20, Serial2/0	
D	194.65.81.64/29 [90/5103] via 192.168.1.161, 00:12:20, Serial2/0	
D	194.65.81.72/29 [90/5103] via 192.168.1.161, 00:12:20, Serial2/0	
D	194.65.81.80/29 [90/5203] via 192.168.1.161, 00:12:20, Serial2/0	
D	194.65.81.88/29 [90/5203] via 192.168.1.161, 00:12:20, Serial2/0	
D	194.65.81.96/29 [90/5303] via 192.168.1.161, 00:12:20, Serial2/0	
D	194.65.81.104/29 [90/5303] via 192.168.1.161, 00:12:20, Serial2/0	
D	194.65.81.112/29 [90/5303] via 192.168.1.161, 00:12:20, Serial2/0	
D	194.65.81.120/29 [90/5303] via 192.168.1.161, 00:12:20, Serial2/0	
D	194.65.81.128/29 [90/5203] via 192.168.1.161, 00:12:20, Serial2/0	
D	194.65.81.136/29 [90/5203] via 192.168.1.161, 00:12:20, Serial2/0	
D	194.65.81.144/29 [90/3103] via 192.168.1.161, 00:12:20, Serial2/0	
D	194.65.81.152/29 [90/3103] via 192.168.1.161, 00:12:20, Serial2/0	
D	194.65.81.160/29 [90/3203] via 192.168.1.161, 00:12:20, Serial2/0	
D	194.65.81.168/29 [90/3203] via 192.168.1.161, 00:12:20, Serial2/0	
D	194.65.81.176/29 [90/3303] via 192.168.1.161, 00:12:20, Serial2/0	
	194.65.82.0/24 is variably subnetted, 7 subnets, 2 masks	
S	194.65.82.0/24 is directly connected, Null0	
D	194.65.82.0/29 [90/1303] via 192.168.1.102, 00:12:14, Ethernet0/1	
D	194.65.82.8/29 [90/1303] via 192.168.1.102, 00:12:14, Ethernet0/1	
D	194.65.82.16/29 [90/1303] via 192.168.1.117, 00:12:14, Ethernet0/0	
D	194.65.82.24/29 [90/1303] via 192.168.1.117, 00:12:14, Ethernet0/0	
D	194.65.82.32/29 [90/1203] via 192.168.1.117, 00:12:19, Ethernet0/0	
D	194.65.82.40/29 [90/1203] via 192.168.1.117, 00:12:19, Ethernet0/0	
	R1-Laboratorio#	

- R1-Resíduos:

R1-Residuos	
D*EX	0.0.0.0/0 [170/6200] via 192.168.1.162, 00:07:40, Serial2/1 192.168.1.0/24 is variably subnetted, 39 subnets, 4 masks
S	192.168.1.0/24 is directly connected, Null0
D EX	192.168.1.0/28 [170/6003] via 192.168.1.162, 00:14:41, Serial2/1
D EX	192.168.1.16/30 [170/6003] via 192.168.1.162, 00:14:41, Serial2/1
D EX	192.168.1.20/30 [170/6003] via 192.168.1.162, 00:14:41, Serial2/1
D EX	192.168.1.24/30 [170/6003] via 192.168.1.162, 00:14:41, Serial2/1
D	192.168.1.28/30 [90/6100] via 192.168.1.137, 00:15:44, Serial2/0
D EX	192.168.1.48/30 [170/6003] via 192.168.1.162, 00:14:41, Serial2/1
D EX	192.168.1.52/30 [170/6003] via 192.168.1.162, 00:14:31, Serial2/1
D EX	192.168.1.56/30 [170/6003] via 192.168.1.162, 00:14:31, Serial2/1
D EX	192.168.1.60/30 [170/6003] via 192.168.1.162, 00:14:31, Serial2/1
D EX	192.168.1.64/30 [170/6003] via 192.168.1.162, 00:14:41, Serial2/1
D	192.168.1.68/30 [90/4100] via 192.168.1.162, 00:15:29, Serial2/1
D	192.168.1.72/30 [90/5103] via 192.168.1.137, 00:15:44, Serial2/0
D	192.168.1.76/30 [90/5203] via 192.168.1.137, 00:15:44, Serial2/0
D	192.168.1.80/30 [90/5303] via 192.168.1.137, 00:15:44, Serial2/0
D	192.168.1.84/30 [90/5203] via 192.168.1.137, 00:15:44, Serial2/0
D	192.168.1.88/30 [90/5103] via 192.168.1.137, 00:15:44, Serial2/0
D	192.168.1.92/30 [90/4100] via 192.168.1.137, 00:15:44, Serial2/0
D	192.168.1.96/30 [90/3103] via 192.168.1.137, 00:15:44, Serial2/0
D	192.168.1.100/30 [90/3103] via 192.168.1.162, 00:15:29, Serial2/1
D	192.168.1.104/30 [90/3203] via 192.168.1.162, 00:15:28, Serial2/1

	194.65.81.0/24 is variably subnetted, 33 subnets, 3 masks
S	194.65.81.0/24 is directly connected, Null0
D	194.65.81.0/29 [90/5203] via 192.168.1.137, 00:15:44, Serial2/0
D	194.65.81.8/29 [90/5203] via 192.168.1.137, 00:15:44, Serial2/0
D	194.65.81.16/29 [90/5303] via 192.168.1.137, 00:15:44, Serial2/0
D	194.65.81.24/29 [90/5303] via 192.168.1.137, 00:15:44, Serial2/0
D	194.65.81.32/29 [90/5303] via 192.168.1.137, 00:15:44, Serial2/0
D	194.65.81.40/29 [90/5303] via 192.168.1.137, 00:15:44, Serial2/0
D	194.65.81.64/29 [90/3103] via 192.168.1.137, 00:15:44, Serial2/0
D	194.65.81.72/29 [90/3103] via 192.168.1.137, 00:15:44, Serial2/0
D	194.65.81.80/29 [90/3203] via 192.168.1.137, 00:15:44, Serial2/0
D	194.65.81.88/29 [90/3203] via 192.168.1.137, 00:15:44, Serial2/0
D	194.65.81.96/29 [90/3303] via 192.168.1.137, 00:15:44, Serial2/0
D	194.65.81.104/29 [90/3303] via 192.168.1.137, 00:15:44, Serial2/0
D	194.65.81.112/29 [90/3303] via 192.168.1.137, 00:15:44, Serial2/0
D	194.65.81.120/29 [90/3303] via 192.168.1.137, 00:15:44, Serial2/0
D	194.65.81.128/29 [90/3203] via 192.168.1.137, 00:15:44, Serial2/0
D	194.65.81.136/29 [90/3203] via 192.168.1.137, 00:15:44, Serial2/0
S	194.65.81.144/29 is directly connected, Ethernet0/2
L	194.65.81.150/32 is directly connected, Ethernet0/2
C	194.65.81.152/29 is directly connected, Ethernet0/3
L	194.65.81.158/32 is directly connected, Ethernet0/3
D	194.65.81.160/29 [90/1203] via 192.168.1.142, 00:15:40, Ethernet0/0

	194.65.82.0/24 is variably subnetted, 7 subnets, 2 masks
S	194.65.82.0/24 is directly connected, Null0
D	194.65.82.0/29 [90/3303] via 192.168.1.162, 00:15:23, Serial2/1
D	194.65.82.8/29 [90/3303] via 192.168.1.162, 00:15:23, Serial2/1
D	194.65.82.16/29 [90/3303] via 192.168.1.162, 00:15:23, Serial2/1
D	194.65.82.24/29 [90/3303] via 192.168.1.162, 00:15:23, Serial2/1
D	194.65.82.32/29 [90/3203] via 192.168.1.162, 00:15:28, Serial2/1
D	194.65.82.40/29 [90/3203] via 192.168.1.162, 00:15:28, Serial2/1
R1-Residuos#	

• R1-Consumíveis:

✓ R1-Consumíveis ✕	
D*EX	0.0.0.0/0 [170/6003] via 192.168.1.93, 00:12:50, Serial2/0
	192.168.1.0/24 is variably subnetted, 39 subnets, 4 masks
S	192.168.1.0/24 is directly connected, Null0
D EX	192.168.1.0/28 [170/6003] via 192.168.1.93, 00:19:50, Serial2/0
D EX	192.168.1.16/30 [170/6003] via 192.168.1.93, 00:19:50, Serial2/0
D EX	192.168.1.20/30 [170/6003] via 192.168.1.93, 00:19:50, Serial2/0
D EX	192.168.1.24/30 [170/6003] via 192.168.1.93, 00:19:50, Serial2/0
D	192.168.1.28/30 [90/4100] via 192.168.1.93, 00:21:05, Serial2/0
D EX	192.168.1.48/30 [170/6003] via 192.168.1.93, 00:19:50, Serial2/0
D EX	192.168.1.52/30 [170/8003] via 192.168.1.138, 00:19:40, Serial2/1
D EX	192.168.1.56/30 [170/8003] via 192.168.1.138, 00:19:39, Serial2/1
D EX	192.168.1.60/30 [170/8003] via 192.168.1.138, 00:19:39, Serial2/1
D EX	192.168.1.64/30 [170/6003] via 192.168.1.93, 00:19:50, Serial2/0
D	192.168.1.68/30 [90/6100] via 192.168.1.138, 00:20:38, Serial2/1
D	192.168.1.72/30 [90/3103] via 192.168.1.93, 00:21:05, Serial2/0
D	192.168.1.76/30 [90/3203] via 192.168.1.93, 00:21:05, Serial2/0
D	192.168.1.80/30 [90/3303] via 192.168.1.93, 00:21:05, Serial2/0
D	192.168.1.84/30 [90/3203] via 192.168.1.93, 00:21:05, Serial2/0
D	192.168.1.88/30 [90/3103] via 192.168.1.93, 00:21:05, Serial2/0
C	192.168.1.92/30 is directly connected, Serial2/0
L	192.168.1.94/32 is directly connected, Serial2/0
C	192.168.1.96/30 is directly connected, Ethernet0/0
L	192.168.1.97/32 is directly connected, Ethernet0/0

✓ R1-Consumíveis ✕	
	194.65.80.0/24 is variably subnetted, 23 subnets, 3 masks
S	194.65.80.0/24 is directly connected, Null0
D EX	194.65.80.0/28 [170/6003] via 192.168.1.93, 00:19:38, Serial2/0
D EX	194.65.80.16/28 [170/6003] via 192.168.1.93, 00:19:50, Serial2/0
D EX	194.65.80.32/28 [170/6003] via 192.168.1.93, 00:19:50, Serial2/0
D EX	194.65.80.48/28 [170/6003] via 192.168.1.93, 00:19:50, Serial2/0
D EX	194.65.80.64/28 [170/6003] via 192.168.1.93, 00:19:50, Serial2/0
D EX	194.65.80.80/28 [170/6003] via 192.168.1.93, 00:19:50, Serial2/0
D EX	194.65.80.96/28 [170/6003] via 192.168.1.93, 00:19:50, Serial2/0
D EX	194.65.80.112/28 [170/6003] via 192.168.1.93, 00:19:50, Serial2/0
D EX	194.65.80.128/28 [170/6003] via 192.168.1.93, 00:19:50, Serial2/0
D EX	194.65.80.144/28 [170/6003] via 192.168.1.93, 00:19:50, Serial2/0
D EX	194.65.80.160/29 [170/6003] via 192.168.1.93, 00:19:50, Serial2/0
D EX	194.65.80.168/29 [170/6003] via 192.168.1.93, 00:19:50, Serial2/0
D EX	194.65.80.176/29 [170/8003] via 192.168.1.138, 00:19:40, Serial2/1
D EX	194.65.80.184/29 [170/8003] via 192.168.1.138, 00:19:39, Serial2/1
D EX	194.65.80.192/29 [170/8003] via 192.168.1.138, 00:19:39, Serial2/1
D EX	194.65.80.200/29 [170/8003] via 192.168.1.138, 00:19:39, Serial2/1
D EX	194.65.80.208/29 [170/8003] via 192.168.1.138, 00:19:39, Serial2/1
D EX	194.65.80.216/29 [170/8003] via 192.168.1.138, 00:19:39, Serial2/1
D EX	194.65.80.224/29 [170/8003] via 192.168.1.138, 00:19:39, Serial2/1
D EX	194.65.80.232/29 [170/8003] via 192.168.1.138, 00:19:39, Serial2/1
D	194.65.80.240/29 [90/3103] via 192.168.1.93, 00:21:05, Serial2/0

	194.65.81.0/24 is variably subnetted, 33 subnets, 3 masks
S	194.65.81.0/24 is directly connected, Null0
D	194.65.81.0/29 [90/3203] via 192.168.1.93, 00:21:05, Serial2/0
D	194.65.81.8/29 [90/3203] via 192.168.1.93, 00:21:05, Serial2/0
D	194.65.81.16/29 [90/3303] via 192.168.1.93, 00:21:05, Serial2/0
D	194.65.81.24/29 [90/3303] via 192.168.1.93, 00:21:05, Serial2/0
D	194.65.81.32/29 [90/3303] via 192.168.1.93, 00:21:05, Serial2/0
D	194.65.81.40/29 [90/3303] via 192.168.1.93, 00:21:05, Serial2/0
C	194.65.81.64/29 is directly connected, Ethernet0/2
L	194.65.81.70/32 is directly connected, Ethernet0/2
C	194.65.81.72/29 is directly connected, Ethernet0/3
L	194.65.81.78/32 is directly connected, Ethernet0/3
D	194.65.81.80/29 [90/1203] via 192.168.1.98, 00:21:03, Ethernet0/0
D	194.65.81.88/29 [90/1203] via 192.168.1.98, 00:21:03, Ethernet0/0
D	194.65.81.96/29 [90/1303] via 192.168.1.98, 00:20:54, Ethernet0/0
D	194.65.81.104/29 [90/1303] via 192.168.1.98, 00:20:54, Ethernet0/0
D	194.65.81.112/29 [90/1303] via 192.168.1.133, 00:20:56, Ethernet0/1
D	194.65.81.120/29 [90/1303] via 192.168.1.133, 00:20:56, Ethernet0/1
D	194.65.81.128/29 [90/1203] via 192.168.1.133, 00:21:01, Ethernet0/1
D	194.65.81.136/29 [90/1203] via 192.168.1.133, 00:21:01, Ethernet0/1
D	194.65.81.144/29 [90/3103] via 192.168.1.138, 00:20:54, Serial2/1
D	194.65.81.152/29 [90/3103] via 192.168.1.138, 00:20:54, Serial2/1
D	194.65.81.160/29 [90/3203] via 192.168.1.138, 00:20:49, Serial2/1

	194.65.82.0/24 is variably subnetted, 7 subnets, 2 masks
S	194.65.82.0/24 is directly connected, Null0
D	194.65.82.0/29 [90/5303] via 192.168.1.138, 00:20:33, Serial2/1
D	194.65.82.8/29 [90/5303] via 192.168.1.138, 00:20:33, Serial2/1
D	194.65.82.16/29 [90/5303] via 192.168.1.138, 00:20:33, Serial2/1
D	194.65.82.24/29 [90/5303] via 192.168.1.138, 00:20:33, Serial2/1
D	194.65.82.32/29 [90/5203] via 192.168.1.138, 00:20:38, Serial2/1
D	194.65.82.40/29 [90/5203] via 192.168.1.138, 00:20:38, Serial2/1
R1-Consumiveis#	

R1-Fabricação:

R1-Fabricacao X		194.65.80.0/24 is variably subnetted, 25 subnets, 4 masks	
D*EX	0.0.0.0/0 [170/4003] via 192.168.1.29, 00:29:57, Serial2/0	S	194.65.80.0/24 is directly connected, Null0
	192.168.1.0/24 is variably subnetted, 39 subnets, 4 masks	D EX	194.65.80.0/28 [170/4003] via 192.168.1.29, 00:29:47, Serial2/0
S	192.168.1.0/24 is directly connected, Null0	D EX	194.65.80.16/28 [170/4003] via 192.168.1.29, 00:30:33, Serial2/0
D EX	192.168.1.0/28 [170/4003] via 192.168.1.29, 00:31:13, Serial2/0	D EX	194.65.80.32/28 [170/4003] via 192.168.1.29, 00:30:33, Serial2/0
D EX	192.168.1.16/30 [170/4003] via 192.168.1.29, 00:30:33, Serial2/0	D EX	194.65.80.48/28 [170/4003] via 192.168.1.29, 00:30:33, Serial2/0
D EX	192.168.1.20/30 [170/4003] via 192.168.1.29, 00:31:21, Serial2/0	D EX	194.65.80.64/28 [170/4003] via 192.168.1.29, 00:30:33, Serial2/0
D EX	192.168.1.24/30 [170/4003] via 192.168.1.29, 00:30:33, Serial2/0	D EX	194.65.80.80/28 [170/4003] via 192.168.1.29, 00:30:33, Serial2/0
C	192.168.1.28/30 is directly connected, Serial2/0	D EX	194.65.80.96/28 [170/4003] via 192.168.1.29, 00:30:33, Serial2/0
L	192.168.1.30/32 is directly connected, Serial2/0	D EX	194.65.80.112/28 [170/4003] via 192.168.1.29, 00:30:33, Serial2/0
D EX	192.168.1.48/30 [170/4003] via 192.168.1.29, 00:29:57, Serial2/0	D EX	194.65.80.128/28 [170/4003] via 192.168.1.29, 00:31:21, Serial2/0
D EX	192.168.1.52/30 [170/10003] via 192.168.1.94, 00:29:46, Serial2/1	D EX	194.65.80.144/28 [170/4003] via 192.168.1.29, 00:31:21, Serial2/0
D EX	192.168.1.56/30 [170/10003] via 192.168.1.94, 00:29:46, Serial2/1	D EX	194.65.80.160/29 [170/4003] via 192.168.1.29, 00:29:57, Serial2/0
D EX	192.168.1.60/30 [170/10003] via 192.168.1.94, 00:29:46, Serial2/1	D EX	194.65.80.168/29 [170/4003] via 192.168.1.29, 00:29:57, Serial2/0
D EX	192.168.1.64/30 [170/4003] via 192.168.1.29, 00:29:57, Serial2/0	D EX	194.65.80.176/29 [170/10003] via 192.168.1.94, 00:29:46, Serial2/1
D	192.168.1.68/30 [90/8100] via 192.168.1.94, 00:30:45, Serial2/1	D EX	194.65.80.184/29 [170/10003] via 192.168.1.94, 00:29:46, Serial2/1
C	192.168.1.72/30 is directly connected, Ethernet0/2	D EX	194.65.80.192/29 [170/10003] via 192.168.1.94, 00:29:46, Serial2/1
L	192.168.1.73/32 is directly connected, Ethernet0/2	D EX	194.65.80.200/29 [170/10003] via 192.168.1.94, 00:29:46, Serial2/1
D	192.168.1.76/30 [90/1203] via 192.168.1.74, 00:31:18, Ethernet0/2	D EX	194.65.80.208/29 [170/10003] via 192.168.1.94, 00:29:46, Serial2/1
D	192.168.1.80/30 [90/1303] via 192.168.1.89, 00:31:12, Ethernet0/3	D EX	194.65.80.216/29 [170/10003] via 192.168.1.94, 00:29:46, Serial2/1
	[90/1303] via 192.168.1.74, 00:31:12, Ethernet0/2	D EX	194.65.80.224/29 [170/10003] via 192.168.1.94, 00:29:46, Serial2/1
D	192.168.1.84/30 [90/1203] via 192.168.1.89, 00:31:15, Ethernet0/3	D EX	194.65.80.232/29 [170/10003] via 192.168.1.94, 00:29:46, Serial2/1
C	192.168.1.88/30 is directly connected, Ethernet0/3	C	194.65.80.240/29 is directly connected, Ethernet0/0
L	192.168.1.90/32 is directly connected, Ethernet0/3		

194.65.81.0/24 is variably subnetted, 31 subnets, 2 masks	
S	194.65.81.0/24 is directly connected, Null0
D	194.65.81.0/29 [90/1203] via 192.168.1.74, 00:31:18, Ethernet0/2
D	194.65.81.8/29 [90/1203] via 192.168.1.74, 00:31:18, Ethernet0/2
D	194.65.81.16/29 [90/1303] via 192.168.1.74, 00:31:12, Ethernet0/2
D	194.65.81.24/29 [90/1303] via 192.168.1.74, 00:31:12, Ethernet0/2
D	194.65.81.32/29 [90/1303] via 192.168.1.89, 00:31:12, Ethernet0/3
D	194.65.81.40/29 [90/1303] via 192.168.1.89, 00:31:12, Ethernet0/3
D	194.65.81.64/29 [90/3103] via 192.168.1.94, 00:31:11, Serial2/1
D	194.65.81.72/29 [90/3103] via 192.168.1.94, 00:31:11, Serial2/1
D	194.65.81.80/29 [90/3203] via 192.168.1.94, 00:31:09, Serial2/1
D	194.65.81.88/29 [90/3203] via 192.168.1.94, 00:31:09, Serial2/1
D	194.65.81.96/29 [90/3303] via 192.168.1.94, 00:31:04, Serial2/1
D	194.65.81.104/29 [90/3303] via 192.168.1.94, 00:31:04, Serial2/1
D	194.65.81.112/29 [90/3303] via 192.168.1.94, 00:31:02, Serial2/1
D	194.65.81.120/29 [90/3303] via 192.168.1.94, 00:31:02, Serial2/1
D	194.65.81.128/29 [90/3203] via 192.168.1.94, 00:31:07, Serial2/1
D	194.65.81.136/29 [90/3203] via 192.168.1.94, 00:31:07, Serial2/1
D	194.65.81.144/29 [90/5103] via 192.168.1.94, 00:31:01, Serial2/1
D	194.65.81.152/29 [90/5103] via 192.168.1.94, 00:31:01, Serial2/1
D	194.65.81.160/29 [90/5203] via 192.168.1.94, 00:30:56, Serial2/1
D	194.65.81.168/29 [90/5203] via 192.168.1.94, 00:30:56, Serial2/1
D	194.65.81.176/29 [90/5303] via 192.168.1.94, 00:30:55, Serial2/1

194.65.82.0/24 is variably subnetted, 7 subnets, 2 masks	
S	194.65.82.0/24 is directly connected, Null0
D	194.65.82.0/29 [90/7303] via 192.168.1.94, 00:30:39, Serial2/1
D	194.65.82.8/29 [90/7303] via 192.168.1.94, 00:30:39, Serial2/1
D	194.65.82.16/29 [90/7303] via 192.168.1.94, 00:30:39, Serial2/1
D	194.65.82.24/29 [90/7303] via 192.168.1.94, 00:30:39, Serial2/1
D	194.65.82.32/29 [90/7203] via 192.168.1.94, 00:30:44, Serial2/1
D	194.65.82.40/29 [90/7203] via 192.168.1.94, 00:30:44, Serial2/1
R1-Fabricacao#	

Conectividade

- Sede para exterior (ligação primária):

```
R5-Sede#ping 1.1.1.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 1.1.1.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 24/25/26 ms
R5-Sede#
```

- Sede para exterior (ligação secundária):

```
R5-Sede#ping 1.1.1.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 1.1.1.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 18/24/30 ms
R5-Sede#
```

- Expedição para exterior (ligação secundária):

```
R1-Expedicao#ping 1.1.1.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 1.1.1.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 20/20/22 ms
R1-Expedicao#
```

- Expedição para exterior (ligação primária):

```
R1-Expedicao#ping 1.1.1.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 1.1.1.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 51/56/63 ms
R1-Expedicao#
```

- Resíduos para exterior:

```
R1-Residuos#ping 1.1.1.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 1.1.1.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 33/41/52 ms
R1-Residuos#
```

- Sede para Fabricação, PC1-F:

```
R9-Sede#ping 194.65.80.241
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 194.65.80.241, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 2/6/10 ms
R9-Sede#
```

- Consumíveis para Resíduos, PC1-R:

```
R1-Consumiveis#ping 194.65.81.145
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 194.65.81.145, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 2/5/7 ms
R1-Consumiveis#
```

- Laboratório PC1-L para PC7-L em IPV6:

```
PC1-(L)> ping 2001:1:4::1

2001:1:4::1 icmp6_seq=1 ttl=58 time=23.926 ms
2001:1:4::1 icmp6_seq=2 ttl=58 time=1.501 ms
2001:1:4::1 icmp6_seq=3 ttl=58 time=1.652 ms
2001:1:4::1 icmp6_seq=4 ttl=58 time=1.737 ms
^C
PC1-(L)>
```

Funcionalidades Extra

- NAT
- SSH no R1-Expedição
- Por fim ainda adicionei uma área STUB na Sede, R5-Sede.