



DEPARTAMENTO DE ENGENHARIA INFORMATICA E DE SISTEMAS

ISEC - Instituto Superior de Engenharia de Coimbra

Projeto de Planeamento e configuração de uma Rede de Dados

Encaminhamento de Dados

Licenciatura em Engenharia Informática,

Ramo de Redes e Administração de Sistemas

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1. Introdução

Este relatório apresenta o trabalho desenvolvido na unidade curricular de Encaminhamento de Dados, sob a orientação do professor Amâncio Santos. O projeto foi realizado utilizando o programa GNS3, na versão 2.2.38, com o objetivo de simular uma rede de filiais interconectadas.

O ambiente de simulação foi configurado com uma máquina virtual como *Main Server*. Ao todo, foram configuradas sete filiais, cada uma utilizando um protocolo de encaminhamento específico.

A sede da empresa foi configurada com o protocolo OSPF, enquanto o Bar, a Lavandaria e a Piscina utilizaram o protocolo EIGRP. Hotel e o Restaurante com o protocolo RIPv2, e o Ginásio foi configurado com OSPF e IPV6 com tuneis dinâmicos.

No decorrer deste relatório, serão abordados diversos aspetos do projeto, incluindo o Mapa de Endereçamento, os protocolos de encaminhamento utilizados, as tabelas de encaminhamento geradas, a conectividade entre as filiais como também para o exterior, além de algumas funcionalidades extras implementadas no trabalho.

2. Topologia

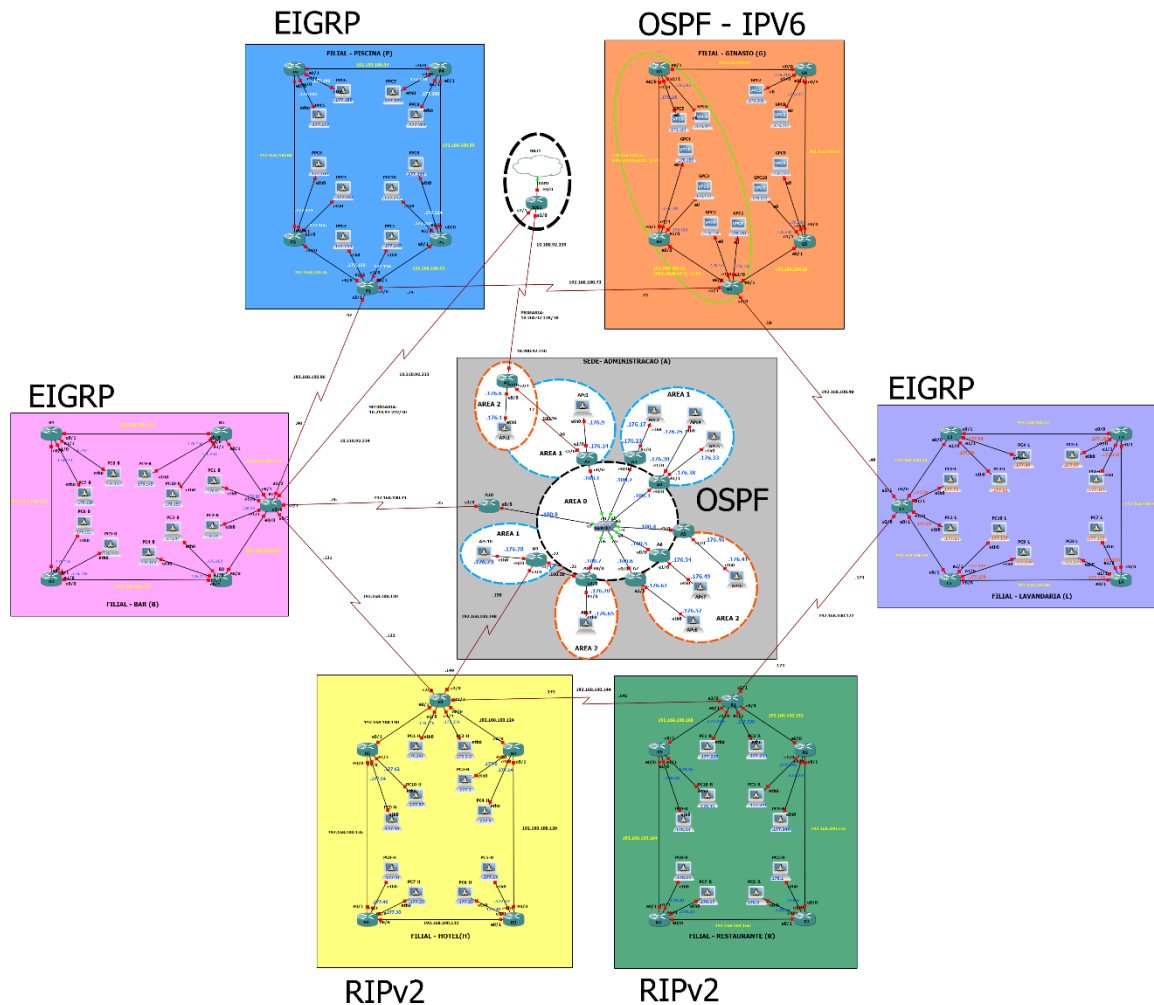


Figura 1 - Topologia do Trabalho Prático

Os routers foram configurados com a imagem **i86bi-linux-l3-adventerprisek9-15.4.1T.bin**, e para os switches, foi adotada uma abordagem mais simples, utilizando o Ethernet Switch. Embora não apresente todas as capacidades de um switch de camada de distribuição, o Ethernet Switch foi suficiente para atender às necessidades básicas de conectividade dentro da Sede.

3. Configurações

Em todos os routers do projeto, foi configurado:

```
service password-encryption
enable secret cisco
line com 0
    password cisco
    login
line vty 0 4
    password cisco
    login
    transport input telnet
```

Deste modo, as passwords dos routers estão encriptadas, os routers permitem o acesso remoto por telnet com a password cisco, e em todos os routers, também foi configurado um banner motd, exemplo:



Figura 2 - Exemplo de Banner Motd

4. Mapa de Endereçamento

4.1. Endereçamento de PCs

	MASK	NETWORK	PRIMEIRO	ULTIMO	BROADCAST	WILDCARD	SLASH
A1 - PC1	.248	194.65.176.0	194.65.176.1	194.65.176.6	194.65.176.7	0.0.0.7	/29
A2 - PC2	.248	194.65.176.8	194.65.176.9	194.65.176.14	194.65.176.15	0.0.0.7	/29
A3 - PC3	.248	194.65.176.16	194.65.176.17	194.65.176.22	194.65.176.23	0.0.0.7	/29
A4 - PC4	.248	194.65.176.24	194.65.176.25	194.65.176.30	194.65.176.31	0.0.0.7	/29
A4 - PC5	.249	194.65.176.32	194.65.176.33	194.65.176.38	194.65.176.39	0.0.0.7	/29
A5 - PC6	.248	194.65.176.40	194.65.176.41	194.65.176.46	194.65.176.47	0.0.0.7	/29
A6 - PC7	.248	194.65.176.48	194.65.176.49	194.65.176.54	194.65.176.55	0.0.0.7	/29
A7 - PC8	.248	194.65.176.56	194.65.176.57	194.65.176.62	194.65.176.63	0.0.0.7	/29
A8 - PC9	.248	194.65.176.64	194.65.176.65	194.65.176.70	194.65.176.71	0.0.0.7	/29
A9 - PC10	.248	194.65.176.72	194.65.176.73	194.65.176.78	194.65.176.79	0.0.0.7	/29
B1 - PC1	.248	194.65.176.80	194.65.176.81	194.65.176.86	194.65.176.87	0.0.0.7	/29
B1 - PC2	.248	194.65.176.88	194.65.176.89	194.65.176.94	194.65.176.95	0.0.0.7	/29
B2 - PC3	.248	194.65.176.96	194.65.176.97	194.65.176.102	194.65.176.103	0.0.0.7	/29
B2 - PC4	.248	194.65.176.104	194.65.176.105	194.65.176.110	194.65.176.111	0.0.0.7	/29
B3 - PC5	.248	194.65.176.112	194.65.176.113	194.65.176.118	194.65.176.119	0.0.0.7	/29
B3 - PC6	.248	194.65.176.120	194.65.176.121	194.65.176.126	194.65.176.127	0.0.0.7	/29
B4 - PC7	.248	194.65.176.128	194.65.176.129	194.65.176.134	194.65.176.135	0.0.0.7	/29
B4 - PC8	.248	194.65.176.136	194.65.176.137	194.65.176.142	194.65.176.143	0.0.0.7	/29
B5 - PC9	.248	194.65.176.144	194.65.176.145	194.65.176.150	194.65.176.151	0.0.0.7	/29
B5 - PC10	.248	194.65.176.152	194.65.176.153	194.65.176.158	194.65.176.159	0.0.0.7	/29
G1 - PC1	.248	194.65.176.160	194.65.176.161	194.65.176.166	194.65.176.167	0.0.0.7	/29
G1 - PC2	.248	194.65.176.168	194.65.176.169	194.65.176.174	194.65.176.175	0.0.0.7	/29
G2 - PC3	.248	194.65.176.176	194.65.176.177	194.65.176.182	194.65.176.183	0.0.0.7	/29
G2 - PC4	.248	194.65.176.184	194.65.176.185	194.65.176.190	194.65.176.191	0.0.0.7	/29
G3 - PC5	.248	194.65.176.192	194.65.176.193	194.65.176.198	194.65.176.199	0.0.0.7	/29
G3 - PC6	.248	194.65.176.200	194.65.176.201	194.65.176.206	194.65.176.207	0.0.0.7	/29
G4 - PC7	.248	194.65.176.208	194.65.176.209	194.65.176.214	194.65.176.215	0.0.0.7	/29
G4 - PC8	.248	194.65.176.216	194.65.176.217	194.65.176.222	194.65.176.223	0.0.0.7	/29
G5 - PC9	.248	194.65.176.224	194.65.176.225	194.65.176.230	194.65.176.231	0.0.0.7	/29
G5 - PC10	.248	194.65.176.232	194.65.176.233	194.65.176.238	194.65.176.239	0.0.0.7	/29
H1 - PC1	.248	194.65.176.240	194.65.176.241	194.65.176.246	194.65.176.247	0.0.0.7	/29
H1 - PC2	.248	194.65.176.248	194.65.176.249	194.65.176.254	194.65.176.255	0.0.0.7	/29
H2 - PC3	.248	194.65.177.0	194.65.177.1	194.65.177.6	194.65.177.7	0.0.0.7	/29
H2 - PC4	.248	194.65.177.8	194.65.177.9	194.65.177.14	194.65.177.15	0.0.0.7	/29
H3 - PC5	.248	194.65.177.16	194.65.177.17	194.65.177.22	194.65.177.23	0.0.0.7	/29
H3 - PC6	.248	194.65.177.24	194.65.177.25	194.65.177.30	194.65.177.31	0.0.0.7	/29
H4 - PC7	.248	194.65.177.32	194.65.177.33	194.65.177.38	194.65.177.39	0.0.0.7	/29
H4 - PC8	.248	194.65.177.40	194.65.177.41	194.65.177.46	194.65.177.47	0.0.0.7	/29
H5 - PC9	.248	194.65.177.48	194.65.177.49	194.65.177.54	194.65.177.55	0.0.0.7	/29
H5 - PC10	.248	194.65.177.56	194.65.177.57	194.65.177.62	194.65.177.63	0.0.0.7	/29

	MASK	NETWORK	PRIMEIRO	ULTIMO	BROADCAST	WILDCARD	SLASH
L1 - PC1	.248	194.65.177.64	194.65.177.65	194.65.177.70	194.65.177.71	0.0.0.7	/29
L1 - PC2	.248	194.65.177.72	194.65.177.73	194.65.177.78	194.65.177.79	0.0.0.7	/29
L2 - PC3	.248	194.65.177.80	194.65.177.81	194.65.177.86	194.65.177.87	0.0.0.7	/29
L2 - PC4	.248	194.65.177.88	194.65.177.89	194.65.177.94	194.65.177.95	0.0.0.7	/29
L3 - PC5	.248	194.65.177.96	194.65.177.97	194.65.177.102	194.65.177.103	0.0.0.7	/29
L3 - PC6	.248	194.65.177.104	194.65.177.105	194.65.177.110	194.65.177.111	0.0.0.7	/29
L4 - PC7	.248	194.65.177.112	194.65.177.113	194.65.177.118	194.65.177.119	0.0.0.7	/29
L4 - PC8	.248	194.65.177.120	194.65.177.121	194.65.177.126	194.65.177.127	0.0.0.7	/29
L5 - PC9	.248	194.65.177.128	194.65.177.129	194.65.177.134	194.65.177.135	0.0.0.7	/29
L5 - PC10	.248	194.65.177.136	194.65.177.137	194.65.177.142	194.65.177.143	0.0.0.7	/29
P1 - PC1	.248	194.65.177.144	194.65.177.145	194.65.177.150	194.65.177.151	0.0.0.7	/29
P1 - PC2	.248	194.65.177.152	194.65.177.153	194.65.177.158	194.65.177.159	0.0.0.7	/29
P2 - PC3	.248	194.65.177.160	194.65.177.161	194.65.177.166	194.65.177.167	0.0.0.7	/29
P2 - PC4	.248	194.65.177.168	194.65.177.169	194.65.177.174	194.65.177.175	0.0.0.7	/29
P3 - PC5	.248	194.65.177.176	194.65.177.177	194.65.177.182	194.65.177.183	0.0.0.7	/29
P3 - PC6	.248	194.65.177.184	194.65.177.185	194.65.177.190	194.65.177.191	0.0.0.7	/29
P4 - PC7	.248	194.65.177.192	194.65.177.193	194.65.177.198	194.65.177.199	0.0.0.7	/29
P4 - PC8	.248	194.65.177.200	194.65.177.201	194.65.177.206	194.65.177.207	0.0.0.7	/29
P5 - PC9	.248	194.65.177.208	194.65.177.209	194.65.177.214	194.65.177.215	0.0.0.7	/29
P5 - PC10	.248	194.65.177.216	194.65.177.217	194.65.177.222	194.65.177.223	0.0.0.7	/29
R1 - PC1	.248	194.65.177.224	194.65.177.225	194.65.177.230	194.65.177.231	0.0.0.7	/29
R1 - PC2	.248	194.65.177.232	194.65.177.233	194.65.177.238	194.65.177.239	0.0.0.7	/29
R2 - PC3	.248	194.65.177.240	194.65.177.241	194.65.177.246	194.65.177.247	0.0.0.7	/29
R2 - PC4	.248	194.65.177.248	194.65.177.249	194.65.177.254	194.65.177.255	0.0.0.7	/29
R3 - PC5	.248	194.65.178.0	194.65.178.1	194.65.178.6	194.65.178.7	0.0.0.7	/29
R3 - PC6	.248	194.65.178.8	194.65.178.9	194.65.178.14	194.65.178.15	0.0.0.7	/29
R4 - PC7	.248	194.65.178.16	194.65.178.17	194.65.178.22	194.65.178.23	0.0.0.7	/29
R4 - PC8	.248	194.65.178.24	194.65.178.25	194.65.178.30	194.65.178.31	0.0.0.7	/29
R5 - PC9	.248	194.65.178.32	194.65.178.33	194.65.178.38	194.65.178.39	0.0.0.7	/29
R5 - PC10	.248	194.65.178.40	194.65.178.41	194.65.178.46	194.65.178.47	0.0.0.7	/29

Figura 3 - Endereçamento de PCs

4.2. Endereçamento Entre Routers

	LAN	MASCARA	NETWORK	PRIMEIRO	ULTIMO	BROADCAST	WILDCARD	SLASH	
1	REDE AREA 0	.240	192.168.100.0	192.168.100.1	192.168.100.14	192.168.100.15	0.0.0.15	/28	
2	A1-A2	.252	192.168.100.16	192.168.100.17	192.168.100.18	192.168.100.19	0.0.0.3	/30	
3	A8-A9	.252	192.168.100.20	192.168.100.21	192.168.100.22	192.168.100.23	0.0.0.3	/30	
4	A10-B1	.252	192.168.100.24	192.168.100.25	192.168.100.26	192.168.100.27	0.0.0.3	/30	
1	L1-L2	.252	192.168.100.28	192.168.100.29	192.168.100.30	192.168.100.31	0.0.0.3	/30	
2	L2-L3	.252	192.168.100.32	192.168.100.33	192.168.100.34	192.168.100.35	0.0.0.3	/30	
3	L3-L4	.252	192.168.100.36	192.168.100.37	192.168.100.38	192.168.100.39	0.0.0.3	/30	
4	L4-L5	.252	192.168.100.40	192.168.100.41	192.168.100.42	192.168.100.43	0.0.0.3	/30	
5	L5-L1	.252	192.168.100.44	192.168.100.45	192.168.100.46	192.168.100.47	0.0.0.3	/30	
6	L1-G1	.252	192.168.100.48	192.168.100.49	192.168.100.50	192.168.100.51	0.0.0.3	/30	
1	G1-G2	.252	192.168.100.52	192.168.100.53	192.168.100.54	192.168.100.55	0.0.0.3	/30	
2	G2-G3	.252	192.168.100.56	192.168.100.57	192.168.100.58	192.168.100.59	0.0.0.3	/30	
3	G3-G4	.252	192.168.100.60	192.168.100.61	192.168.100.62	192.168.100.63	0.0.0.3	/30	
4	G4-G5	.252	192.168.100.64	192.168.100.65	192.168.100.66	192.168.100.67	0.0.0.3	/30	
5	G5-G1	.252	192.168.100.68	192.168.100.69	192.168.100.70	192.168.100.71	0.0.0.3	/30	
6	G1-P1	.252	192.168.100.72	192.168.100.73	192.168.100.74	192.168.100.75	0.0.0.3	/30	
1	P1-P2	.252	192.168.100.76	192.168.100.77	192.168.100.78	192.168.100.79	0.0.0.3	/30	
2	P2-P3	.252	192.168.100.80	192.168.100.81	192.168.100.82	192.168.100.83	0.0.0.3	/30	
3	P3-P4	.252	192.168.100.84	192.168.100.85	192.168.100.86	192.168.100.87	0.0.0.3	/30	
4	P4-P5	.252	192.168.100.88	192.168.100.89	192.168.100.90	192.168.100.91	0.0.0.3	/30	
5	P5-P1	.252	192.168.100.92	192.168.100.93	192.168.100.94	192.168.100.95	0.0.0.3	/30	
6	P1-B1	.252	192.168.100.96	192.168.100.97	192.168.100.98	192.168.100.99	0.0.0.3	/30	
1	B1-B2	.252	192.168.100.100	192.168.100.101	192.168.100.102	192.168.100.103	0.0.0.3	/30	
2	B2-B3	.252	192.168.100.104	192.168.100.105	192.168.100.106	192.168.100.107	0.0.0.3	/30	
3	B3-B4	.252	192.168.100.108	192.168.100.109	192.168.100.110	192.168.100.111	0.0.0.3	/30	
4	B4-B5	.252	192.168.100.112	192.168.100.113	192.168.100.114	192.168.100.115	0.0.0.3	/30	
5	B5-B1	.252	192.168.100.116	192.168.100.117	192.168.100.118	192.168.100.119	0.0.0.3	/30	
6	B1-H1	.252	192.168.100.120	192.168.100.121	192.168.100.122	192.168.100.123	0.0.0.3	/30	
1	H1-H2	.252	192.168.100.124	192.168.100.125	192.168.100.126	192.168.100.127	0.0.0.3	/30	
2	H2-H3	.252	192.168.100.128	192.168.100.129	192.168.100.130	192.168.100.131	0.0.0.3	/30	
3	H3-H4	.252	192.168.100.132	192.168.100.133	192.168.100.134	192.168.100.135	0.0.0.3	/30	
4	H4-H5	.252	192.168.100.136	192.168.100.137	192.168.100.138	192.168.100.139	0.0.0.3	/30	
5	H5-H1	.252	192.168.100.140	192.168.100.141	192.168.100.142	192.168.100.143	0.0.0.3	/30	
6	H1-R1	.252	192.168.100.144	192.168.100.145	192.168.100.146	192.168.100.147	0.0.0.3	/30	
7	H1-A9	.253	192.168.100.148	192.168.100.149	192.168.100.150	192.168.100.151	0.0.0.3	/30	
1	R1-R2	.252	192.168.100.152	192.168.100.153	192.168.100.154	192.168.100.155	0.0.0.3	/30	
2	R2-R3	.252	192.168.100.156	192.168.100.157	192.168.100.158	192.168.100.159	0.0.0.3	/30	
3	R3-R4	.252	192.168.100.160	192.168.100.161	192.168.100.162	192.168.100.163	0.0.0.3	/30	
4	R4-R5	.252	192.168.100.164	192.168.100.165	192.168.100.166	192.168.100.167	0.0.0.3	/30	
5	R5-R1	.252	192.168.100.168	192.168.100.169	192.168.100.170	192.168.100.171	0.0.0.3	/30	
6	R1-L1	.252	192.168.100.172	192.168.100.173	192.168.100.174	192.168.100.175	0.0.0.3	/30	
ISP	Prim-A1	.252	10.200.92.228	10.200.92.229	10.200.92.230	10.200.92.231	0.0.0.3	/30	
	Sec-B1	.252	10.210.92.232	10.210.92.233	10.210.92.234	10.210.92.235	0.0.0.3	/30	

Figura 4 - Endereçamento Entre Routers

5. Protocolos De Encaminhamento Usado

Neste trabalho prático, foram aplicados três protocolos de encaminhamento distintos para configurar a rede. O protocolo OSPF foi utilizado na Administração (sede), onde foram criadas três áreas, com dois links virtuais. Nos locais Restaurante e Hotel, foi adotado o protocolo RIPv2, enquanto na Piscina, Bar e Lavandaria foi utilizado o EIGRP e no Ginásio, optou-se pelo uso do OSPF, com a inclusão do protocolo IPV6.

Em todos os Routers com conexões a terminais, foi aplicado o comando "passive-interface" nas portas correspondentes.

Com o intuito de evitar rotas classfull, nas filiais que utilizaram o RIPv2, foi implementado o comando "no auto-summary". Além disso, a ligação primária foi configurada para uma velocidade de 1Gbps, a ligação secundária para 100Mbps e as conexões entre as filiais possuem uma velocidade de 100Mbps.

No router B1 do Bar, foi criada uma "prefix-list" para negar anúncios EIGRP originados do router B5. Foram adicionadas discard routes, em todos os routers "1" (B1, H1, R1, L1, G1 e P1) das filiais, para a criação de rotas Null0.

Na filial do Ginásio, foram criados endereços IPV6 nos routers 1, 2 e 3, e os VPCS associados a esses routers também receberam endereços IPV6. A implementação do IPV6 foi realizada através de túneis dinâmicos.

6. Tabelas de Encaminhamento

6.1. Administração

```
A1 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt+R>

A1 B1 G1 H1 L1 P1 R1
A1#sh ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2
i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
ia - IS-IS inter area, * - candidate default, U - per-user static route
o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP
a - application route
+ - replicated route, % - next hop override

Gateway of last resort is 0.0.0.0 to network 0.0.0.0

S* 0.0.0.0/0 is directly connected, Serial2/0
10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
C 10.200.92.228/30 is directly connected, Serial2/0
L 10.200.92.220/32 is directly connected, Serial2/0
O E2 10.210.92.232/30 [110/20] via 192.168.100.18, 00:00:15, Serial2/1
192.168.100.0/24 is variably subnetted, 35 subnets, 3 masks
O 192.168.100.0/28 [110/74] via 192.168.100.18, 00:00:15, Serial2/1
C 192.168.100.16/30 is directly connected, Serial2/1
L 192.168.100.17/32 is directly connected, Serial2/1
O E2 192.168.100.20/30 [110/20] via 192.168.100.18, 00:00:25, Serial2/1
O 192.168.100.24/30 [110/75] via 192.168.100.18, 00:00:15, Serial2/1
O E2 192.168.100.28/30 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.32/30 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.36/30 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.40/30 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.44/30 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.48/30 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.52/30 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.56/30 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.60/30 [110/50000] via 192.168.100.18, 00:00:00, Serial2/1
O E2 192.168.100.64/30 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.68/30 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.72/30 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.76/30 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.80/30 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.84/30 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.88/30 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.92/30 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.96/30 [110/20] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.100/30 [110/20] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.104/30 [110/20] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.108/30 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1

Send chat to all sessions

Ready Telnet: 192.168.231.126 46 4 46 Rows 80 Cols VT100 CAP NUM
```

```
A1 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt+R>

A1 B1 G1 H1 L1 P1 R1
A1#sh ip route
O E2 192.168.100.108/30 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.112/30 [110/20] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.116/30 [110/20] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.120/30 [110/20] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.132/30 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.156/30 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.160/30 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.164/30 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.168/30 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 192.168.100.172/30 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
194.65.176.0/24 is variably subnetted, 28 subnets, 2 masks
C 194.65.176.0/29 is directly connected, Ethernet0/0
L 194.65.176.6/32 is directly connected, Ethernet0/0
O 194.65.176.8/29 [110/74] via 192.168.100.18, 00:00:25, Serial2/1
O IA 194.65.176.16/29 [110/84] via 192.168.100.18, 00:00:15, Serial2/1
O IA 194.65.176.24/29 [110/84] via 192.168.100.18, 00:00:15, Serial2/1
O IA 194.65.176.32/29 [110/84] via 192.168.100.18, 00:00:15, Serial2/1
O IA 194.65.176.40/29 [110/84] via 192.168.100.18, 00:00:15, Serial2/1
O IA 194.65.176.48/29 [110/84] via 192.168.100.18, 00:00:15, Serial2/1
O IA 194.65.176.56/29 [110/84] via 192.168.100.18, 00:00:15, Serial2/1
O IA 194.65.176.64/29 [110/84] via 192.168.100.18, 00:00:15, Serial2/1
O E2 194.65.176.80/29 [110/20] via 192.168.100.18, 00:00:25, Serial2/1
O E2 194.65.176.88/29 [110/20] via 192.168.100.18, 00:00:25, Serial2/1
O E2 194.65.176.96/29 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 194.65.176.104/29 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 194.65.176.112/29 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 194.65.176.120/29 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 194.65.176.128/29 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 194.65.176.136/29 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 194.65.176.160/29 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 194.65.176.168/29 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 194.65.176.176/29 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 194.65.176.184/29 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 194.65.176.192/29 [110/50000] via 192.168.100.18, 00:00:00, Serial2/1
O E2 194.65.176.200/29 [110/50000] via 192.168.100.18, 00:00:00, Serial2/1
O E2 194.65.176.208/29 [110/50000] via 192.168.100.18, 00:00:00, Serial2/1
O E2 194.65.176.216/29 [110/50000] via 192.168.100.18, 00:00:00, Serial2/1
O E2 194.65.176.224/29 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
O E2 194.65.176.232/29 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1

Send chat to all sessions

Ready Telnet: 192.168.231.126 46 4 46 Rows 80 Cols VT100 CAP NUM
```

```
A1 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt+B>
A1 B1 G1 H1 L1 P1 R1
0 E2 194.65.176.168/29 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.176.176/29 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.176.184/29 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.176.192/29 [110/50000] via 192.168.100.18, 00:00:00, Serial2/1
0 E2 194.65.176.200/29 [110/50000] via 192.168.100.18, 00:00:00, Serial2/1
0 E2 194.65.176.208/29 [110/50000] via 192.168.100.18, 00:00:00, Serial2/1
0 E2 194.65.176.216/29 [110/50000] via 192.168.100.18, 00:00:00, Serial2/1
0 E2 194.65.176.224/29 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.176.232/29 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
194.65.177.0/29 is subnetted, 24 subnets
0 E2 194.65.177.64 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.177.72 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.177.80 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.177.88 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.177.96 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.177.104 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.177.112 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.177.120 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.177.128 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.177.136 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.177.144 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.177.152 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.177.160 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.177.168 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.177.176 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.177.184 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.177.192 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.177.200 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.177.208 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.177.216 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.177.224 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.177.232 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.177.240 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.177.248 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
194.65.178.0/29 is subnetted, 6 subnets
0 E2 194.65.178.0 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.178.8 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.178.16 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.178.24 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.178.32 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
0 E2 194.65.178.40 [110/50000] via 192.168.100.18, 00:00:25, Serial2/1
A1#
A1#
A1#
A1#
A1#
Send chat to all sessions
Ready Telnet: 192.168.231.126 46 4 46 Rows 80 Cols VT100 CAP NUM
```

6.2. Bar

```
B1 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt+B>
B1 G1 H1 L1 P1 R1
B1#sh ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2
i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
ia - IS-IS inter area, * - candidate default, U - per-user static route
o - ODR, P - periodic downloaded static route, H - NHRP, I - ISIS
a - application route
+ - replicated route, % - next hop override

Gateway of last resort is 0.0.0.0 to network 0.0.0.0

S* 0.0.0.0/0 is directly connected, Serial3/0
10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C 10.210.92.232/30 is directly connected, Serial3/0
L 10.210.92.234/32 is directly connected, Serial3/0
S 192.168.100.0/24 is variably subnetted, 45 subnets, 3 masks
S 192.168.100.0/28 [1/0] via 192.168.100.25
O IA 192.168.100.16/30 [110/751] via 192.168.100.25, 00:00:28, Serial2/1
L 192.168.100.24/30 is directly connected, Serial2/1
L 192.168.100.26/32 is directly connected, Serial2/1
D EX 192.168.100.28/30 [170/9501] via 192.168.100.97, 00:02:49, Serial2/2
D EX 192.168.100.32/30 [170/9501] via 192.168.100.97, 00:00:45, Serial2/2
D EX 192.168.100.36/30 [170/9501] via 192.168.100.97, 00:00:37, Serial2/2
D EX 192.168.100.40/30 [170/9501] via 192.168.100.97, 00:00:46, Serial2/2
D EX 192.168.100.44/30 [170/9501] via 192.168.100.97, 00:02:49, Serial2/2
D EX 192.168.100.48/30 [170/9501] via 192.168.100.97, 00:02:49, Serial2/2
D EX 192.168.100.52/30 [170/9501] via 192.168.100.97, 00:02:49, Serial2/2
D EX 192.168.100.56/30 [170/9501] via 192.168.100.97, 00:00:27, Serial2/2
D EX 192.168.100.60/30 [170/9501] via 192.168.100.97, 00:00:01, Serial2/2
D EX 192.168.100.64/30 [170/9501] via 192.168.100.97, 00:00:27, Serial2/2
D EX 192.168.100.68/30 [170/9501] via 192.168.100.97, 00:02:49, Serial2/2
D 192.168.100.72/30 [90/10501] via 192.168.100.97, 00:02:49, Serial2/2
D 192.168.100.76/30 [90/8601] via 192.168.100.97, 00:02:49, Serial2/2
D 192.168.100.80/30 [90/8701] via 192.168.100.97, 00:00:41, Serial2/2
D 192.168.100.84/30 [90/8801] via 192.168.100.97, 00:00:41, Serial2/2
D 192.168.100.88/30 [90/8701] via 192.168.100.97, 00:00:40, Serial2/2
D 192.168.100.92/30 [90/8601] via 192.168.100.97, 00:02:49, Serial2/2
C 192.168.100.96/30 is directly connected, Serial2/2
L 192.168.100.98/32 is directly connected, Serial2/2
C 192.168.100.100/30 is directly connected, Ethernet0/0
L 192.168.100.101/32 is directly connected, Ethernet0/0
S 192.168.100.104/30 [1/0] via 192.168.100.102
D 192.168.100.108/30 [90/1303] via 192.168.100.117, 00:00:35, Ethernet0/1
Send chat to all sessions
Ready Telnet: 192.168.231.126 46 4 46 Rows 80 Cols VT100 CAP NUM
```

```
B1 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt+B>
B1 G1 H1 L1 P1 R1
[90/1303] via 192.168.100.117, 00:00:35, Ethernet0/1
S 192.168.100.112/30 [1/0] via 192.168.100.117
C 192.168.100.116/30 is directly connected, Ethernet0/1
L 192.168.100.118/32 is directly connected, Ethernet0/1
C 192.168.100.120/30 is directly connected, Serial2/3
L 192.168.100.121/32 is directly connected, Serial2/3
R 192.168.100.124/30 [120/1] via 192.168.100.122, 00:00:12, Serial2/3
R 192.168.100.128/30 [120/2] via 192.168.100.122, 00:00:12, Serial2/3
R 192.168.100.132/30 [120/3] via 192.168.100.122, 00:00:12, Serial2/3
R 192.168.100.136/30 [120/2] via 192.168.100.122, 00:00:12, Serial2/3
R 192.168.100.140/30 [120/1] via 192.168.100.122, 00:00:12, Serial2/3
R 192.168.100.144/30 [120/1] via 192.168.100.122, 00:00:12, Serial2/3
R 192.168.100.148/30 [120/1] via 192.168.100.122, 00:00:12, Serial2/3
D EX 192.168.100.152/30 [170/9501] via 192.168.100.97, 00:02:49, Serial2/2
D EX 192.168.100.156/30 [170/9501] via 192.168.100.97, 00:00:49, Serial2/2
D EX 192.168.100.160/30 [170/9501] via 192.168.100.97, 00:00:47, Serial2/2
D EX 192.168.100.164/30 [170/9501] via 192.168.100.97, 00:00:46, Serial2/2
D EX 192.168.100.168/30 [170/9501] via 192.168.100.97, 00:02:49, Serial2/2
D EX 192.168.100.172/30 [170/9501] via 192.168.100.97, 00:02:49, Serial2/2
194.65.176.0/24 is variably subnetted, 30 subnets, 2 masks
O IA 194.65.176.0/29 [110/85] via 192.168.100.25, 00:00:17, Serial2/1
O IA 194.65.176.8/29 [110/21] via 192.168.100.25, 00:00:28, Serial2/1
O IA 194.65.176.16/29 [110/21] via 192.168.100.25, 00:00:29, Serial2/1
O IA 194.65.176.24/29 [110/21] via 192.168.100.25, 00:00:28, Serial2/1
O IA 194.65.176.32/29 [110/21] via 192.168.100.25, 00:00:28, Serial2/1
O IA 194.65.176.40/29 [110/21] via 192.168.100.25, 00:00:28, Serial2/1
O IA 194.65.176.48/29 [110/21] via 192.168.100.25, 00:00:30, Serial2/1
O IA 194.65.176.56/29 [110/21] via 192.168.100.25, 00:00:29, Serial2/1
O IA 194.65.176.64/29 [110/21] via 192.168.100.25, 00:00:28, Serial2/1
R 194.65.176.72/29 [120/3] via 192.168.100.122, 00:00:04, Serial2/3
C 194.65.176.80/29 is directly connected, Ethernet1/0
L 194.65.176.86/32 is directly connected, Ethernet1/0
C 194.65.176.88/29 is directly connected, Ethernet1/1
L 194.65.176.94/32 is directly connected, Ethernet1/1
D 194.65.176.96/29 [90/1203] via 192.168.100.102, 00:00:38, Ethernet0/0
D 194.65.176.104/29 [90/1203] via 192.168.100.102, 00:00:38, Ethernet0/0
D 194.65.176.112/29 [90/1303] via 192.168.100.102, 00:00:32, Ethernet0/0
D 194.65.176.120/29 [90/1303] via 192.168.100.102, 00:00:32, Ethernet0/0
D 194.65.176.128/29 [90/1303] via 192.168.100.117, 00:00:35, Ethernet0/1
D 194.65.176.136/29 [90/1303] via 192.168.100.117, 00:00:35, Ethernet0/1
D EX 194.65.176.160/29 [170/9501] via 192.168.100.97, 00:02:49, Serial2/2
Send chat to all sessions
Ready Telnet: 192.168.231.126 46 4 46 Rows 80 Cols VT100 CAP NUM
```

```
B1 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt+R>
B1 G1 H1 L1 P1 R1
[90/1301] via 192.168.100.117, 00:00:35, Ethernet0/1
D EX 194.65.176.160/29 [170/9501] via 192.168.100.97, 00:02:49, Serial2/2
D EX 194.65.176.168/29 [170/9501] via 192.168.100.97, 00:02:49, Serial2/2
D EX 194.65.176.176/29 [170/9501] via 192.168.100.97, 00:00:27, Serial2/2
D EX 194.65.176.184/29 [170/9501] via 192.168.100.97, 00:00:27, Serial2/2
D EX 194.65.176.192/29 [170/9501] via 192.168.100.97, 00:00:01, Serial2/2
D EX 194.65.176.200/29 [170/9501] via 192.168.100.97, 00:00:01, Serial2/2
D EX 194.65.176.208/29 [170/9501] via 192.168.100.97, 00:00:01, Serial2/2
D EX 194.65.176.216/29 [170/9501] via 192.168.100.97, 00:00:01, Serial2/2
D EX 194.65.176.224/29 [170/9501] via 192.168.100.97, 00:00:27, Serial2/2
D EX 194.65.176.232/29 [170/9501] via 192.168.100.97, 00:00:27, Serial2/2
194.65.177.0/29 is subnetted, 32 subnets
R 194.65.177.0 [120/2] via 192.168.100.122, 00:00:12, Serial2/3
R 194.65.177.8 [120/2] via 192.168.100.122, 00:00:12, Serial2/3
R 194.65.177.16 [120/3] via 192.168.100.122, 00:00:12, Serial2/3
R 194.65.177.24 [120/3] via 192.168.100.122, 00:00:12, Serial2/3
R 194.65.177.32 [120/3] via 192.168.100.122, 00:00:12, Serial2/3
R 194.65.177.40 [120/3] via 192.168.100.122, 00:00:12, Serial2/3
R 194.65.177.48 [120/2] via 192.168.100.122, 00:00:12, Serial2/3
R 194.65.177.56 [120/2] via 192.168.100.122, 00:00:12, Serial2/3
D EX 194.65.177.64 [170/9501] via 192.168.100.97, 00:02:49, Serial2/2
D EX 194.65.177.72 [170/9501] via 192.168.100.97, 00:02:49, Serial2/2
D EX 194.65.177.80 [170/9501] via 192.168.100.97, 00:00:45, Serial2/2
D EX 194.65.177.88 [170/9501] via 192.168.100.97, 00:00:45, Serial2/2
D EX 194.65.177.96 [170/9501] via 192.168.100.97, 00:00:37, Serial2/2
D EX 194.65.177.104 [170/9501] via 192.168.100.97, 00:00:37, Serial2/2
D EX 194.65.177.112 [170/9501] via 192.168.100.97, 00:00:37, Serial2/2
D EX 194.65.177.120 [170/9501] via 192.168.100.97, 00:00:37, Serial2/2
D EX 194.65.177.128 [170/9501] via 192.168.100.97, 00:00:46, Serial2/2
D EX 194.65.177.136 [170/9501] via 192.168.100.97, 00:00:46, Serial2/2
D 194.65.177.144 [90/8601] via 192.168.100.97, 00:02:49, Serial2/2
D 194.65.177.152 [90/8601] via 192.168.100.97, 00:02:49, Serial2/2
D 194.65.177.160 [90/8701] via 192.168.100.97, 00:00:41, Serial2/2
D 194.65.177.168 [90/8701] via 192.168.100.97, 00:00:41, Serial2/2
D 194.65.177.176 [90/8801] via 192.168.100.97, 00:00:41, Serial2/2
D 194.65.177.184 [90/8801] via 192.168.100.97, 00:00:41, Serial2/2
D 194.65.177.192 [90/8801] via 192.168.100.97, 00:00:40, Serial2/2
D 194.65.177.200 [90/8801] via 192.168.100.97, 00:00:40, Serial2/2
D 194.65.177.208 [90/8701] via 192.168.100.97, 00:00:40, Serial2/2
D 194.65.177.216 [90/8701] via 192.168.100.97, 00:00:40, Serial2/2
D EX 194.65.177.224 [170/9501] via 192.168.100.97, 00:02:49, Serial2/2
D EX 194.65.177.232 [170/9501] via 192.168.100.97, 00:02:49, Serial2/2
D EX 194.65.177.240 [170/9501] via 192.168.100.97, 00:00:49, Serial2/2
D EX 194.65.177.248 [170/9501] via 192.168.100.97, 00:00:49, Serial2/2
194.65.178.0/29 is subnetted, 6 subnets
D EX 194.65.178.0 [170/9501] via 192.168.100.97, 00:00:47, Serial2/2
Send chat to all sessions
Ready Telnet: 192.168.231.126 45 4 45 Rows 80 Cols VT100 CAP NUM
```

```
194.65.178.0/29 is subnetted, 6 subnets
D EX 194.65.178.0 [170/9501] via 192.168.100.97, 00:00:47, Serial2/2
D EX 194.65.178.8 [170/9501] via 192.168.100.97, 00:00:46, Serial2/2
D EX 194.65.178.16 [170/9501] via 192.168.100.97, 00:00:44, Serial2/2
D EX 194.65.178.24 [170/9501] via 192.168.100.97, 00:00:44, Serial2/2
D EX 194.65.178.32 [170/9501] via 192.168.100.97, 00:00:46, Serial2/2
D EX 194.65.178.40 [170/9501] via 192.168.100.97, 00:00:46, Serial2/2
D EX 194.65.178.48 [170/9501] via 192.168.100.97, 00:00:46, Serial2/2
```

6.3. Ginásio

```
G1 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt+R>
G1 H1 L1 P1 R1
G1#sh ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2
I - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
ia - IS-IS inter area, * - candidate default, U - per-user static route
o - ODR, P - periodic downloaded static route, H - NHRP, I - ISIS
a - application route
+ - replicated route, % - next hop override
Gateway of last resort is not set
10.0.0.0/30 is subnetted, 1 subnets
O E2 10.210.92.232 [110/50000] via 192.168.100.74, 00:00:21, Serial2/1
192.168.100.0/24 is variably subnetted, 44 subnets, 3 masks
O E2 192.168.100.0/28 [110/50000] via 192.168.100.74, 00:02:49, Serial2/1
O E2 192.168.100.16/30 [110/50000] via 192.168.100.74, 00:00:27, Serial2/1
O E2 192.168.100.24/30 [110/50000] via 192.168.100.74, 00:02:49, Serial2/1
O E2 192.168.100.28/30 [110/20] via 192.168.100.49, 00:02:55, Serial2/0
O E2 192.168.100.32/30 [110/50000] via 192.168.100.49, 00:00:45, Serial2/0
O E2 192.168.100.36/30 [110/50000] via 192.168.100.49, 00:00:37, Serial2/0
O E2 192.168.100.40/30 [110/50000] via 192.168.100.49, 00:00:46, Serial2/0
O E2 192.168.100.44/30 [110/20] via 192.168.100.49, 00:02:55, Serial2/0
C 192.168.100.48/30 is directly connected, Serial2/0
L 192.168.100.50/32 is directly connected, Serial2/0
C 192.168.100.52/30 is directly connected, Ethernet0/0
L 192.168.100.53/32 is directly connected, Ethernet0/0
O 192.168.100.56/30 [110/20] via 192.168.100.54, 00:00:01, Ethernet0/0
O 192.168.100.60/30 [110/30] via 192.168.100.54, 00:00:01, Ethernet0/1
L 192.168.100.64/30 [110/30] via 192.168.100.54, 00:00:01, Ethernet0/0
O 192.168.100.68/30 [110/20] via 192.168.100.69, 00:00:37, Ethernet0/1
L 192.168.100.70/32 is directly connected, Ethernet0/1
C 192.168.100.72/30 is directly connected, Serial2/1
L 192.168.100.73/32 is directly connected, Serial2/1
O E2 192.168.100.76/30 [110/20] via 192.168.100.74, 00:00:27, Serial2/1
O E2 192.168.100.80/30 [110/50000] via 192.168.100.74, 00:00:37, Serial2/1
O E2 192.168.100.84/30 [110/50000] via 192.168.100.74, 00:00:37, Serial2/1
O E2 192.168.100.88/30 [110/50000] via 192.168.100.74, 00:00:37, Serial2/1
O E2 192.168.100.92/30 [110/20] via 192.168.100.74, 00:03:00, Serial2/1
O E2 192.168.100.96/30 [110/20] via 192.168.100.74, 00:03:00, Serial2/1
O E2 192.168.100.100/30 [110/50000] via 192.168.100.74, 00:02:49, Serial2/1
O E2 192.168.100.104/30 [110/50000] via 192.168.100.74, 00:02:49, Serial2/1
```

```
G1 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt+R>
G1 H1 L1 P1 R1
O E2 [110/50000] via 192.168.100.74, 00:02:49, Serial2/1
192.168.100.108/30 [110/50000] via 192.168.100.74, 00:00:27, Serial2/1
O E2 192.168.100.112/30 [110/50000] via 192.168.100.74, 00:02:49, Serial2/1
O E2 192.168.100.116/30 [110/50000] via 192.168.100.74, 00:02:49, Serial2/1
O E2 192.168.100.120/30 [110/50000] via 192.168.100.74, 00:02:41, Serial2/1
O E2 192.168.100.124/30 [110/50000] via 192.168.100.74, 00:02:41, Serial2/1
O E2 192.168.100.128/30 [110/50000] via 192.168.100.74, 00:00:50, Serial2/1
O E2 192.168.100.132/30 [110/50000] via 192.168.100.74, 00:00:48, Serial2/1
O E2 192.168.100.136/30 [110/50000] via 192.168.100.74, 00:00:56, Serial2/1
O E2 192.168.100.140/30 [110/50000] via 192.168.100.74, 00:02:41, Serial2/1
O E2 192.168.100.144/30 [110/50000] via 192.168.100.49, 00:02:55, Serial2/0
O E2 192.168.100.148/30 [110/50000] via 192.168.100.49, 00:00:49, Serial2/0
O E2 192.168.100.152/30 [110/50000] via 192.168.100.49, 00:02:55, Serial2/0
O E2 192.168.100.156/30 [110/50000] via 192.168.100.49, 00:00:49, Serial2/0
O E2 192.168.100.160/30 [110/50000] via 192.168.100.49, 00:00:47, Serial2/0
O E2 192.168.100.164/30 [110/50000] via 192.168.100.49, 00:00:46, Serial2/0
O E2 192.168.100.168/30 [110/50000] via 192.168.100.49, 00:02:55, Serial2/0
O E2 192.168.100.172/30 [110/20] via 192.168.100.49, 00:02:55, Serial2/0
194.65.176.0/24 is variably subnetted, 30 subnets, 2 masks
O E2 194.65.176.0/29 [110/50000] via 192.168.100.74, 00:00:17, Serial2/1
O E2 194.65.176.8/29 [110/50000] via 192.168.100.74, 00:00:27, Serial2/1
O E2 194.65.176.16/29 [110/50000] via 192.168.100.74, 00:00:27, Serial2/1
O E2 194.65.176.24/29 [110/50000] via 192.168.100.74, 00:00:27, Serial2/1
O E2 194.65.176.32/29 [110/50000] via 192.168.100.74, 00:00:27, Serial2/1
O E2 194.65.176.40/29 [110/50000] via 192.168.100.74, 00:00:27, Serial2/1
O E2 194.65.176.48/29 [110/50000] via 192.168.100.74, 00:00:27, Serial2/1
O E2 194.65.176.56/29 [110/50000] via 192.168.100.74, 00:00:27, Serial2/1
O E2 194.65.176.64/29 [110/50000] via 192.168.100.74, 00:00:27, Serial2/1
O E2 194.65.176.72/29 [110/50000] via 192.168.100.74, 00:00:01, Serial2/1
O E2 194.65.176.80/29 [110/50000] via 192.168.100.74, 00:02:49, Serial2/1
```

```
G1 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt+R>
G1 H1 L1 P1 R1
O E2 194.65.176.80/29 [110/50000] via 192.168.100.74, 00:02:49, Serial2/1
O E2 194.65.176.88/29 [110/50000] via 192.168.100.74, 00:02:49, Serial2/1
O E2 194.65.176.96/29 [110/50000] via 192.168.100.74, 00:00:37, Serial2/1
O E2 194.65.176.104/29 [110/50000] via 192.168.100.74, 00:00:37, Serial2/1
O E2 194.65.176.112/29 [110/50000] via 192.168.100.74, 00:00:37, Serial2/1
O E2 194.65.176.120/29 [110/50000] via 192.168.100.74, 00:00:37, Serial2/1
O E2 194.65.176.128/29 [110/50000] via 192.168.100.74, 00:00:37, Serial2/1
O E2 194.65.176.136/29 [110/50000] via 192.168.100.74, 00:00:37, Serial2/1
O E2 194.65.176.160/29 is directly connected, Ethernet1/0
L 194.65.176.161/32 is directly connected, Ethernet1/0
C 194.65.176.168/29 is directly connected, Ethernet1/1
L 194.65.176.169/32 is directly connected, Ethernet1/1
O 194.65.176.176/29 [110/20] via 192.168.100.54, 00:00:27, Ethernet0/0
O 194.65.176.184/29 [110/20] via 192.168.100.54, 00:00:27, Ethernet0/0
O 194.65.176.192/29 [110/30] via 192.168.100.54, 00:00:01, Ethernet0/0
O 194.65.176.200/29 [110/30] via 192.168.100.54, 00:00:01, Ethernet0/0
O 194.65.176.208/29 [110/30] via 192.168.100.69, 00:00:01, Ethernet0/1
O 194.65.176.216/29 [110/30] via 192.168.100.69, 00:00:01, Ethernet0/1
O 194.65.176.224/29 [110/20] via 192.168.100.69, 00:00:37, Ethernet0/1
O 194.65.176.232/29 [110/20] via 192.168.100.69, 00:00:37, Ethernet0/1
194.65.177.0/29 is subnetted, 32 subnets
O E2 194.65.177.0 [110/50000] via 192.168.100.74, 00:00:50, Serial2/1
O E2 194.65.177.8 [110/50000] via 192.168.100.74, 00:00:50, Serial2/1
O E2 194.65.177.16 [110/50000] via 192.168.100.74, 00:00:45, Serial2/1
O E2 194.65.177.24 [110/50000] via 192.168.100.74, 00:00:45, Serial2/1
O E2 194.65.177.32 [110/50000] via 192.168.100.74, 00:00:48, Serial2/1
O E2 194.65.177.40 [110/50000] via 192.168.100.74, 00:00:48, Serial2/1
O E2 194.65.177.48 [110/50000] via 192.168.100.74, 00:00:56, Serial2/1
O E2 194.65.177.56 [110/50000] via 192.168.100.74, 00:00:56, Serial2/1
O E2 194.65.177.64 [110/20] via 192.168.100.49, 00:02:55, Serial2/0
O E2 194.65.177.72 [110/20] via 192.168.100.49, 00:02:55, Serial2/0
O E2 194.65.177.80 [110/50000] via 192.168.100.49, 00:00:45, Serial2/0
O E2 194.65.177.88 [110/50000] via 192.168.100.49, 00:00:45, Serial2/0
O E2 194.65.177.96 [110/50000] via 192.168.100.49, 00:00:37, Serial2/0
O E2 194.65.177.104 [110/50000] via 192.168.100.49, 00:00:37, Serial2/0
O E2 194.65.177.112 [110/50000] via 192.168.100.49, 00:00:37, Serial2/0
O E2 194.65.177.120 [110/50000] via 192.168.100.49, 00:00:37, Serial2/0
O E2 194.65.177.128 [110/50000] via 192.168.100.49, 00:00:46, Serial2/0
O E2 194.65.177.136 [110/50000] via 192.168.100.49, 00:00:46, Serial2/0
O E2 194.65.177.144 [110/20] via 192.168.100.74, 00:03:00, Serial2/1
O E2 194.65.177.152 [110/20] via 192.168.100.74, 00:03:00, Serial2/1
O E2 194.65.177.160 [110/50000] via 192.168.100.74, 00:00:37, Serial2/1
O E2 194.65.177.168 [110/50000] via 192.168.100.74, 00:00:37, Serial2/1
O E2 194.65.177.176 [110/50000] via 192.168.100.74, 00:00:37, Serial2/1
O E2 194.65.177.184 [110/50000] via 192.168.100.74, 00:00:37, Serial2/1
O E2 194.65.177.192 [110/50000] via 192.168.100.74, 00:00:37, Serial2/1
```

```
O E2 194.65.177.192 [110/50000] via 192.168.100.74, 00:00:37, Serial2/1
O E2 194.65.177.200 [110/50000] via 192.168.100.74, 00:00:37, Serial2/1
O E2 194.65.177.208 [110/50000] via 192.168.100.74, 00:00:37, Serial2/1
O E2 194.65.177.216 [110/50000] via 192.168.100.74, 00:00:37, Serial2/1
O E2 194.65.177.224 [110/50000] via 192.168.100.49, 00:02:55, Serial2/0
O E2 194.65.177.232 [110/50000] via 192.168.100.49, 00:02:55, Serial2/0
O E2 194.65.177.240 [110/50000] via 192.168.100.49, 00:00:49, Serial2/0
O E2 194.65.177.248 [110/50000] via 192.168.100.49, 00:00:49, Serial2/0
194.65.178.0/29 is subnetted, 6 subnets
O E2 194.65.178.0 [110/50000] via 192.168.100.49, 00:00:47, Serial2/0
O E2 194.65.178.8 [110/50000] via 192.168.100.49, 00:00:47, Serial2/0
O E2 194.65.178.16 [110/50000] via 192.168.100.49, 00:00:44, Serial2/0
O E2 194.65.178.24 [110/50000] via 192.168.100.49, 00:00:44, Serial2/0
O E2 194.65.178.32 [110/50000] via 192.168.100.49, 00:00:46, Serial2/0
O E2 194.65.178.40 [110/50000] via 192.168.100.49, 00:00:46, Serial2/0
G1#
```

6.4. Hotel

```
H1 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt+R>

H1 L1 P1 R1
H1#sh ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
        D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
        N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
        E1 - OSPF external type 1, E2 - OSPF external type 2
        i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
        ia - IS-IS inter area, * - candidate default, U - per-user static route
        o - ODR, P - periodic downloaded static route, H - NHRP, I - LISP
        a - application route
        + - replicated route, % - next hop override

Gateway of last resort is not set

R    10.0.0.0/8 [120/5] via 192.168.100.121, 00:00:06, Serial2/2
S    192.168.100.0/24 is variably subnetted, 41 subnets, 2 masks
R    192.168.100.20/30 [120/1] via 192.168.100.121, 00:00:06, Serial2/2
R    192.168.100.24/30 [120/1] via 192.168.100.121, 00:00:06, Serial2/2
R    192.168.100.28/30 [120/5] via 192.168.100.121, 00:00:06, Serial2/2
R    192.168.100.32/30 [120/5] via 192.168.100.121, 00:00:06, Serial2/2
R    192.168.100.36/30 [120/5] via 192.168.100.121, 00:00:06, Serial2/2
R    192.168.100.40/30 [120/5] via 192.168.100.121, 00:00:06, Serial2/2
R    192.168.100.44/30 [120/5] via 192.168.100.121, 00:00:06, Serial2/2
R    192.168.100.48/30 [120/5] via 192.168.100.121, 00:00:06, Serial2/2
R    192.168.100.52/30 [120/5] via 192.168.100.121, 00:00:06, Serial2/2
R    192.168.100.56/30 [120/5] via 192.168.100.121, 00:00:06, Serial2/2
R    192.168.100.64/30 [120/5] via 192.168.100.121, 00:00:06, Serial2/2
R    192.168.100.68/30 [120/5] via 192.168.100.121, 00:00:06, Serial2/2
R    192.168.100.72/30 [120/5] via 192.168.100.121, 00:00:06, Serial2/2
R    192.168.100.76/30 [120/5] via 192.168.100.121, 00:00:06, Serial2/2
R    192.168.100.80/30 [120/5] via 192.168.100.121, 00:00:06, Serial2/2
R    192.168.100.84/30 [120/5] via 192.168.100.121, 00:00:06, Serial2/2
R    192.168.100.88/30 [120/5] via 192.168.100.121, 00:00:06, Serial2/2
R    192.168.100.92/30 [120/5] via 192.168.100.121, 00:00:06, Serial2/2
R    192.168.100.96/30 [120/1] via 192.168.100.121, 00:00:06, Serial2/2
R    192.168.100.100/30 [120/1] via 192.168.100.121, 00:00:06, Serial2/2
R    192.168.100.108/30 [120/5] via 192.168.100.121, 00:00:06, Serial2/2
R    192.168.100.116/30 [120/1] via 192.168.100.121, 00:00:06, Serial2/2
C    192.168.100.120/30 is directly connected, Serial2/2
L    192.168.100.122/32 is directly connected, Serial2/2
C    192.168.100.124/30 is directly connected, Ethernet0/0
L    192.168.100.125/32 is directly connected, Ethernet0/0
R    192.168.100.128/30 [120/1] via 192.168.100.126, 00:00:25, Ethernet0/0
R    192.168.100.132/30 [120/2] via 192.168.100.141, 00:00:05, Ethernet0/1
R    192.168.100.136/30 [120/2] via 192.168.100.126, 00:00:25, Ethernet0/0
R    192.168.100.140/30 [120/1] via 192.168.100.141, 00:00:05, Ethernet0/1
C    192.168.100.140/30 is directly connected, Ethernet0/1

Send chat to all sessions

Ready Telnet:192.168.231.126 46 4 46 Rows 80 Cols VTI00 CAP NUM
```

```
H1 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt+R>

H1 L1 P1 R1
R    192.168.100.128/30 [120/1] via 192.168.100.126, 00:00:25, Ethernet0/0
R    192.168.100.132/30 [120/2] via 192.168.100.141, 00:00:05, Ethernet0/1
R    192.168.100.136/30 [120/2] via 192.168.100.126, 00:00:25, Ethernet0/0
C    192.168.100.140/30 is directly connected, Ethernet0/1
L    192.168.100.142/32 is directly connected, Ethernet0/1
C    192.168.100.144/30 is directly connected, Serial2/1
L    192.168.100.145/32 is directly connected, Serial2/1
C    192.168.100.148/30 is directly connected, Serial2/0
L    192.168.100.149/32 is directly connected, Serial2/0
R    192.168.100.152/30 [120/5] via 192.168.100.121, 00:00:06, Serial2/2
R    192.168.100.156/30 [120/5] via 192.168.100.121, 00:00:06, Serial2/2
R    192.168.100.160/30 [120/5] via 192.168.100.121, 00:00:06, Serial2/2
R    192.168.100.164/30 [120/5] via 192.168.100.121, 00:00:06, Serial2/2
R    192.168.100.168/30 [120/5] via 192.168.100.121, 00:00:06, Serial2/2
R    192.168.100.172/30 [120/5] via 192.168.100.121, 00:00:06, Serial2/2
R    194.65.176.0/24 is variably subnetted, 6 subnets, 3 masks
R    194.65.176.0/24 [120/5] via 192.168.100.121, 00:00:02, Serial2/2
R    194.65.176.72/29 [120/2] via 192.168.100.150, 00:00:06, Serial2/0
C    194.65.176.240/29 is directly connected, Ethernet1/0
L    194.65.176.246/32 is directly connected, Ethernet1/0
C    194.65.176.248/29 is directly connected, Ethernet1/1
L    194.65.176.254/32 is directly connected, Ethernet1/1
R    194.65.177.0/24 is variably subnetted, 9 subnets, 2 masks
R    194.65.177.0/24 [120/5] via 192.168.100.121, 00:00:06, Serial2/2
R    194.65.177.8/29 [120/1] via 192.168.100.126, 00:00:25, Ethernet0/0
R    194.65.177.16/29 [120/2] via 192.168.100.126, 00:00:25, Ethernet0/0
R    194.65.177.24/29 [120/2] via 192.168.100.126, 00:00:25, Ethernet0/0
R    194.65.177.32/29 [120/2] via 192.168.100.141, 00:00:05, Ethernet0/1
R    194.65.177.40/29 [120/2] via 192.168.100.141, 00:00:05, Ethernet0/1
R    194.65.177.48/29 [120/1] via 192.168.100.141, 00:00:05, Ethernet0/1
R    194.65.177.56/29 [120/1] via 192.168.100.141, 00:00:05, Ethernet0/1
R    194.65.178.0/24 [120/5] via 192.168.100.121, 00:00:06, Serial2/2
H1#
H1#
H1#
H1#
H1#
H1#
H1#
H1#
H1#
H1#

Send chat to all sessions

Ready Telnet:192.168.231.126 46 4 46 Rows 80 Cols VTI00 CAP NUM
```

6.5. Lavandaria

```
L1 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt-R>

L1#sh ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2
I - IS-IS, su - IS-IS summary, LI - IS-IS level-1, L2 - IS-IS level-2
ia - IS-IS inter area, * - candidate default, U - per-user static route
o - ODR, P - periodic downloaded static route, H - NHRP, I - LISP
a - application route
+ - replicated route, % - next hop override

Gateway of last resort is not set

10.0.0.0/30 is subnetted, 1 subnets
O E2 10.210.92.232 [110/50000] via 192.168.100.50, 00:00:21, Serial2/1
192.168.100.0/24 is variably subnetted, 44 subnets, 3 masks
O E2 192.168.100.0/28 [110/50000] via 192.168.100.50, 00:02:49, Serial2/1
O E2 192.168.100.16/30 [110/50000] via 192.168.100.50, 00:00:27, Serial2/1
O E2 192.168.100.24/30 [110/50000] via 192.168.100.50, 00:02:49, Serial2/1
O E2 192.168.100.28/30 is directly connected, Ethernet0/0
L 192.168.100.29/32 is directly connected, Ethernet0/0
D 192.168.100.32/30 [90/1203] via 192.168.100.30, 00:00:45, Ethernet0/0
D 192.168.100.36/30 [90/1303] via 192.168.100.45, 00:00:40, Ethernet0/0
D 192.168.100.40/30 [90/1203] via 192.168.100.30, 00:00:40, Ethernet0/0
D 192.168.100.44/30 is directly connected, Ethernet0/1
C 192.168.100.46/32 is directly connected, Ethernet0/1
C 192.168.100.48/30 is directly connected, Serial2/1
L 192.168.100.49/32 is directly connected, Serial2/1
O 192.168.100.52/30 [110/74] via 192.168.100.50, 00:02:58, Serial2/1
O 192.168.100.56/30 [110/84] via 192.168.100.50, 00:00:01, Serial2/1
O 192.168.100.60/30 [110/94] via 192.168.100.50, 00:00:01, Serial2/1
O 192.168.100.64/30 [110/84] via 192.168.100.50, 00:00:27, Serial2/1
O 192.168.100.68/30 [110/74] via 192.168.100.50, 00:02:58, Serial2/1
O 192.168.100.72/30 [110/65] via 192.168.100.50, 00:02:58, Serial2/1
O E2 192.168.100.76/30 [110/20] via 192.168.100.50, 00:02:58, Serial2/1
O E2 192.168.100.80/30 [110/50000] via 192.168.100.50, 00:00:37, Serial2/1
O E2 192.168.100.84/30 [110/50000] via 192.168.100.50, 00:00:37, Serial2/1
O E2 192.168.100.88/30 [110/50000] via 192.168.100.50, 00:00:37, Serial2/1
O E2 192.168.100.92/30 [110/20] via 192.168.100.50, 00:02:58, Serial2/1
O E2 192.168.100.96/30 [110/20] via 192.168.100.50, 00:02:58, Serial2/1
O E2 192.168.100.100/30 [110/50000] via 192.168.100.50, 00:02:49, Serial2/1
O E2 192.168.100.104/30 [110/50000] via 192.168.100.50, 00:02:49, Serial2/1
O E2 192.168.100.108/30 [110/50000] via 192.168.100.50, 00:02:49, Serial2/1

Send chat to all sessions

Ready Telnet: 192.168.231.126 46 4 46 Rows, 80 Cols VT100 CAP NUM
```

```
L1 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt-R>

O E2 192.168.100.108/30 [110/50000] via 192.168.100.50, 00:00:27, Serial2/1
O E2 192.168.100.112/30 [110/50000] via 192.168.100.50, 00:02:49, Serial2/1
O E2 192.168.100.116/30 [110/50000] via 192.168.100.50, 00:02:49, Serial2/1
O E2 192.168.100.120/30 [110/50000] via 192.168.100.50, 00:02:49, Serial2/1
O E2 192.168.100.124/30 [110/50000] via 192.168.100.50, 00:02:41, Serial2/1
O E2 192.168.100.128/30 [110/50000] via 192.168.100.50, 00:02:41, Serial2/1
O E2 192.168.100.132/30 [110/50000] via 192.168.100.50, 00:00:50, Serial2/1
O E2 192.168.100.136/30 [110/50000] via 192.168.100.50, 00:00:48, Serial2/1
O E2 192.168.100.140/30 [110/50000] via 192.168.100.50, 00:00:56, Serial2/1
O E2 192.168.100.144/30 [110/50000] via 192.168.100.50, 00:02:41, Serial2/1
D EX 192.168.100.148/30 [170/9501] via 192.168.100.173, 00:02:59, Serial2/0
O E2 192.168.100.152/30 [110/50000] via 192.168.100.50, 00:00:17, Serial2/1
D EX 192.168.100.156/30 [170/9501] via 192.168.100.173, 00:02:59, Serial2/0
D EX 192.168.100.160/30 [170/9501] via 192.168.100.173, 00:00:49, Serial2/0
D EX 192.168.100.164/30 [170/9501] via 192.168.100.173, 00:00:47, Serial2/0
D EX 192.168.100.168/30 [170/9501] via 192.168.100.173, 00:00:47, Serial2/0
D EX 192.168.100.172/30 [170/9501] via 192.168.100.173, 00:02:59, Serial2/0
C 192.168.100.172/30 is directly connected, Serial2/0
L 192.168.100.174/32 is directly connected, Serial2/0
194.65.176.0/29 is subnetted, 28 subnets
O E2 194.65.176.0 [110/50000] via 192.168.100.50, 00:00:17, Serial2/1
O E2 194.65.176.8 [110/50000] via 192.168.100.50, 00:00:27, Serial2/1
O E2 194.65.176.16 [110/50000] via 192.168.100.50, 00:00:27, Serial2/1
O E2 194.65.176.24 [110/50000] via 192.168.100.50, 00:00:27, Serial2/1
O E2 194.65.176.32 [110/50000] via 192.168.100.50, 00:00:27, Serial2/1
O E2 194.65.176.40 [110/50000] via 192.168.100.50, 00:00:27, Serial2/1
O E2 194.65.176.48 [110/50000] via 192.168.100.50, 00:00:27, Serial2/1
O E2 194.65.176.56 [110/50000] via 192.168.100.50, 00:00:27, Serial2/1
O E2 194.65.176.64 [110/50000] via 192.168.100.50, 00:00:27, Serial2/1
O E2 194.65.176.72 [110/50000] via 192.168.100.50, 00:00:01, Serial2/1
O E2 194.65.176.80 [110/50000] via 192.168.100.50, 00:02:49, Serial2/1

Send chat to all sessions

Ready Telnet: 192.168.231.126 46 4 46 Rows, 80 Cols VT100 CAP NUM
```

```
L1 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt-R>

O E2 194.65.176.80 [110/50000] via 192.168.100.50, 00:02:49, Serial2/1
O E2 194.65.176.88 [110/50000] via 192.168.100.50, 00:02:49, Serial2/1
O E2 194.65.176.96 [110/50000] via 192.168.100.50, 00:00:37, Serial2/1
O E2 194.65.176.104 [110/50000] via 192.168.100.50, 00:00:37, Serial2/1
O E2 194.65.176.112 [110/50000] via 192.168.100.50, 00:00:37, Serial2/1
O E2 194.65.176.120 [110/50000] via 192.168.100.50, 00:00:37, Serial2/1
O E2 194.65.176.128 [110/50000] via 192.168.100.50, 00:00:37, Serial2/1
O E2 194.65.176.136 [110/50000] via 192.168.100.50, 00:00:37, Serial2/1
O 194.65.176.168 [110/74] via 192.168.100.50, 00:02:58, Serial2/1
O 194.65.176.168 [110/74] via 192.168.100.50, 00:02:58, Serial2/1
O 194.65.176.176 [110/84] via 192.168.100.50, 00:00:27, Serial2/1
O 194.65.176.184 [110/84] via 192.168.100.50, 00:00:27, Serial2/1
O 194.65.176.192 [110/94] via 192.168.100.50, 00:00:01, Serial2/1
O 194.65.176.200 [110/94] via 192.168.100.50, 00:00:01, Serial2/1
O 194.65.176.208 [110/94] via 192.168.100.50, 00:00:01, Serial2/1
O 194.65.176.216 [110/94] via 192.168.100.50, 00:00:01, Serial2/1
O 194.65.176.224 [110/84] via 192.168.100.50, 00:00:27, Serial2/1
O 194.65.176.232 [110/84] via 192.168.100.50, 00:00:27, Serial2/1
194.65.177.0/24 is variably subnetted, 34 subnets, 2 masks
O E2 194.65.177.0/29 [110/50000] via 192.168.100.50, 00:00:50, Serial2/1
O E2 194.65.177.8/29 [110/50000] via 192.168.100.50, 00:00:50, Serial2/1
O E2 194.65.177.16/29 [110/50000] via 192.168.100.50, 00:00:45, Serial2/1
O E2 194.65.177.24/29 [110/50000] via 192.168.100.50, 00:00:45, Serial2/1
O E2 194.65.177.32/29 [110/50000] via 192.168.100.50, 00:00:48, Serial2/1
O E2 194.65.177.40/29 [110/50000] via 192.168.100.50, 00:00:48, Serial2/1
O E2 194.65.177.48/29 [110/50000] via 192.168.100.50, 00:00:56, Serial2/1
O E2 194.65.177.56/29 [110/50000] via 192.168.100.50, 00:00:56, Serial2/1
C 194.65.177.64/32 is directly connected, Ethernet1/0
L 194.65.177.70/32 is directly connected, Ethernet1/1
C 194.65.177.72/32 is directly connected, Ethernet1/1
L 194.65.177.78/32 is directly connected, Ethernet1/1
D 194.65.177.80/29 [90/1203] via 192.168.100.30, 00:00:45, Ethernet0/0
D 194.65.177.88/29 [90/1203] via 192.168.100.30, 00:00:45, Ethernet0/0
D 194.65.177.96/29 [90/1303] via 192.168.100.30, 00:00:40, Ethernet0/0
D 194.65.177.104/29 [90/1303] via 192.168.100.30, 00:00:40, Ethernet0/0
D 194.65.177.112/29 [90/1303] via 192.168.100.45, 00:00:40, Ethernet0/1
D 194.65.177.120/29 [90/1303] via 192.168.100.45, 00:00:40, Ethernet0/1
D 194.65.177.128/29 [90/1203] via 192.168.100.45, 00:00:47, Ethernet0/1
D 194.65.177.136/29 [90/1203] via 192.168.100.45, 00:00:47, Ethernet0/1
O E2 194.65.177.144/29 [90/1303] via 192.168.100.50, 00:02:58, Serial2/1
O E2 194.65.177.152/29 [110/20] via 192.168.100.50, 00:02:58, Serial2/1
O E2 194.65.177.160/29 [110/50000] via 192.168.100.50, 00:00:37, Serial2/1
O E2 194.65.177.168/29 [110/50000] via 192.168.100.50, 00:00:37, Serial2/1
O E2 194.65.177.176/29 [110/50000] via 192.168.100.50, 00:00:37, Serial2/1
O E2 194.65.177.184/29 [110/50000] via 192.168.100.50, 00:00:37, Serial2/1
O E2 194.65.177.192/29 [110/50000] via 192.168.100.50, 00:00:37, Serial2/1

Send chat to all sessions

Ready Telnet: 192.168.231.126 46 4 46 Rows, 80 Cols VT100 CAP NUM
```

```
O E2 194.65.177.192/29 [110/50000] via 192.168.100.50, 00:00:37, Serial2/1
O E2 194.65.177.200/29 [110/50000] via 192.168.100.50, 00:00:37, Serial2/1
O E2 194.65.177.208/29 [110/50000] via 192.168.100.50, 00:00:37, Serial2/1
O E2 194.65.177.216/29 [110/50000] via 192.168.100.50, 00:00:37, Serial2/1
D EX 194.65.177.224/29 [170/9501] via 192.168.100.173, 00:02:59, Serial2/0
D EX 194.65.177.232/29 [170/9501] via 192.168.100.173, 00:02:59, Serial2/0
D EX 194.65.177.240/29 [170/9501] via 192.168.100.173, 00:00:49, Serial2/0
D EX 194.65.177.248/29 [170/9501] via 192.168.100.173, 00:00:49, Serial2/0
194.65.178.0/29 is subnetted, 6 subnets
D EX 194.65.178.0 [170/9501] via 192.168.100.173, 00:00:47, Serial2/0
D EX 194.65.178.8 [170/9501] via 192.168.100.173, 00:00:47, Serial2/0
D EX 194.65.178.16 [170/9501] via 192.168.100.173, 00:00:44, Serial2/0
D EX 194.65.178.24 [170/9501] via 192.168.100.173, 00:00:44, Serial2/0
D EX 194.65.178.32 [170/9501] via 192.168.100.173, 00:00:47, Serial2/0
D EX 194.65.178.40 [170/9501] via 192.168.100.173, 00:00:47, Serial2/0
L1#
```


6.6. Piscina

```
P1 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt-R>

P1#sh ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2
I - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
ia - IS-IS inter area, * - candidate default, U - per-user static route
o - ODR, P - periodic downloaded static route, H - NHRP, I - IISP
a - application route
+ - replicated route, % - next hop override

Gateway of last resort is 192.168.100.98 to network 0.0.0.0

O*EX 0.0.0.0/0 [170/10501] via 192.168.100.98, 00:00:21, Serial2/1
10.0.0.0/30 is subnetted, 1 subnets
D 10.210.92.232 [90/10501] via 192.168.100.98, 00:00:21, Serial2/1
192.168.100.0/24 is variably subnetted, 44 subnets, 3 masks
D EX 192.168.100.0/28 [170/10501] via 192.168.100.98, 00:02:49, Serial2/1
D EX 192.168.100.16/30 [170/9501] via 192.168.100.98, 00:00:28, Serial2/1
D EX 192.168.100.24/30 [90/10501] via 192.168.100.98, 00:02:49, Serial2/1
O E2 192.168.100.28/30 [110/20] via 192.168.100.73, 00:02:52, Serial2/0
O EX 192.168.100.32/30 [110/50000] via 192.168.100.73, 00:00:44, Serial2/0
O E2 192.168.100.36/30 [110/50000] via 192.168.100.73, 00:00:37, Serial2/0
O EX 192.168.100.40/30 [110/50000] via 192.168.100.73, 00:00:46, Serial2/0
O EX 192.168.100.44/30 [110/20] via 192.168.100.73, 00:02:52, Serial2/0
O EX 192.168.100.48/30 [110/65] via 192.168.100.73, 00:02:52, Serial2/0
O EX 192.168.100.52/30 [110/74] via 192.168.100.73, 00:02:52, Serial2/0
O EX 192.168.100.56/30 [110/84] via 192.168.100.73, 00:00:01, Serial2/0
O EX 192.168.100.60/30 [110/94] via 192.168.100.73, 00:00:01, Serial2/0
O EX 192.168.100.64/30 [110/84] via 192.168.100.73, 00:00:27, Serial2/0
O EX 192.168.100.68/30 [110/74] via 192.168.100.73, 00:02:52, Serial2/0
O EX 192.168.100.72/30 is directly connected, Serial2/0
C 192.168.100.74/32 is directly connected, Serial2/0
L 192.168.100.76/30 is directly connected, Ethernet0/0
D 192.168.100.77/32 is directly connected, Ethernet0/0
D 192.168.100.80/30 [90/1203] via 192.168.100.78, 00:00:37, Ethernet0/0
D 192.168.100.84/30 [90/1303] via 192.168.100.93, 00:00:40, Ethernet0/1
O EX 192.168.100.88/30 [90/1303] via 192.168.100.78, 00:00:40, Ethernet0/1
D 192.168.100.88/30 [90/1203] via 192.168.100.93, 00:00:30, Ethernet0/1
C 192.168.100.92/30 is directly connected, Ethernet0/1
L 192.168.100.94/32 is directly connected, Ethernet0/1
C 192.168.100.96/30 is directly connected, Serial2/1
L 192.168.100.97/32 is directly connected, Serial2/1
O EX 192.168.100.100/30 [90/8701] via 192.168.100.98, 00:02:49, Serial2/1
D EX 192.168.100.104/30 [170/8601] via 192.168.100.98, 00:02:49, Serial2/1
D 192.168.100.108/30 [90/8801] via 192.168.100.98, 00:00:34, Serial2/1
```

```
P1 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt-R>

P1#
194.65.176.184 [110/84] via 192.168.100.73, 00:00:27, Serial2/0
O 194.65.176.192 [110/94] via 192.168.100.73, 00:00:01, Serial2/0
O 194.65.176.200 [110/94] via 192.168.100.73, 00:00:01, Serial2/0
O 194.65.176.208 [110/94] via 192.168.100.73, 00:00:01, Serial2/0
O 194.65.176.216 [110/94] via 192.168.100.73, 00:00:01, Serial2/0
O 194.65.176.224 [110/84] via 192.168.100.73, 00:00:27, Serial2/0
O 194.65.176.232 [110/84] via 192.168.100.73, 00:00:27, Serial2/0
194.65.177.0/24 is variably subnetted, 34 subnets, 2 masks
D EX 194.65.177.0/29 [170/9501] via 192.168.100.98, 00:00:50, Serial2/1
D EX 194.65.177.8/29 [170/9501] via 192.168.100.98, 00:00:50, Serial2/1
D EX 194.65.177.16/29 [170/9501] via 192.168.100.98, 00:00:44, Serial2/1
D EX 194.65.177.24/29 [170/9501] via 192.168.100.98, 00:00:44, Serial2/1
D EX 194.65.177.32/29 [170/9501] via 192.168.100.98, 00:00:48, Serial2/1
D EX 194.65.177.40/29 [170/9501] via 192.168.100.98, 00:00:48, Serial2/1
D EX 194.65.177.48/29 [170/9501] via 192.168.100.98, 00:00:55, Serial2/1
D EX 194.65.177.56/29 [170/9501] via 192.168.100.98, 00:00:55, Serial2/1
O E2 194.65.177.64/29 [110/20] via 192.168.100.73, 00:02:52, Serial2/0
O E2 194.65.177.72/29 [110/20] via 192.168.100.73, 00:02:52, Serial2/0
O EX 194.65.177.80/29 [110/50000] via 192.168.100.73, 00:00:44, Serial2/0
O EX 194.65.177.88/29 [110/50000] via 192.168.100.73, 00:00:44, Serial2/0
O E2 194.65.177.96/29 [110/50000] via 192.168.100.73, 00:00:37, Serial2/0
O EX 194.65.177.104/29 [110/50000] via 192.168.100.73, 00:00:37, Serial2/0
O E2 194.65.177.112/29 [110/50000] via 192.168.100.73, 00:00:37, Serial2/0
O EX 194.65.177.120/29 [110/50000] via 192.168.100.73, 00:00:37, Serial2/0
O EX 194.65.177.128/29 [110/50000] via 192.168.100.73, 00:00:46, Serial2/0
O EX 194.65.177.136/29 [110/50000] via 192.168.100.73, 00:00:46, Serial2/0
C 194.65.177.144/29 is directly connected, Ethernet1/0
L 194.65.177.150/32 is directly connected, Ethernet1/0
C 194.65.177.152/29 is directly connected, Ethernet1/1
L 194.65.177.158/32 is directly connected, Ethernet1/1
D 194.65.177.160/29 [90/1203] via 192.168.100.78, 00:00:37, Ethernet0/0
D 194.65.177.168/29 [90/1203] via 192.168.100.78, 00:00:37, Ethernet0/0
D 194.65.177.176/29 [90/1303] via 192.168.100.78, 00:00:40, Ethernet0/0
D 194.65.177.184/29 [90/1303] via 192.168.100.78, 00:00:40, Ethernet0/0
D 194.65.177.192/29 [90/1303] via 192.168.100.93, 00:00:40, Ethernet0/1
D 194.65.177.200/29 [90/1303] via 192.168.100.93, 00:00:40, Ethernet0/1
D 194.65.177.208/29 [90/1303] via 192.168.100.93, 00:00:40, Ethernet0/1
O EX 194.65.177.216/29 [90/1203] via 192.168.100.93, 00:00:40, Ethernet0/1
O E2 194.65.177.224/29 [110/50000] via 192.168.100.73, 00:02:52, Serial2/0
O E2 194.65.177.232/29 [110/50000] via 192.168.100.73, 00:02:52, Serial2/0
O EX 194.65.177.240/29 [110/50000] via 192.168.100.73, 00:00:48, Serial2/0
O EX 194.65.177.248/29 [110/50000] via 192.168.100.73, 00:00:48, Serial2/0
194.65.178.0/29 is subnetted, 6 subnets
O EX 194.65.178.0 [110/50000] via 192.168.100.73, 00:00:46, Serial2/0
O EX 194.65.178.8 [110/50000] via 192.168.100.73, 00:00:46, Serial2/0
O EX 194.65.178.16 [110/50000] via 192.168.100.73, 00:00:44, Serial2/0
```

```
P1 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt-R>

P1#
192.168.100.108/30 [90/8801] via 192.168.100.98, 00:00:34, Serial2/1
D EX 192.168.100.112/30 [170/8601] via 192.168.100.98, 00:02:49, Serial2/1
D EX 192.168.100.116/30 [90/8601] via 192.168.100.98, 00:02:49, Serial2/1
D EX 192.168.100.120/30 [90/10501] via 192.168.100.98, 00:02:41, Serial2/1
D EX 192.168.100.124/30 [170/9501] via 192.168.100.98, 00:02:41, Serial2/1
D EX 192.168.100.128/30 [170/9501] via 192.168.100.98, 00:00:50, Serial2/1
D EX 192.168.100.132/30 [170/9501] via 192.168.100.98, 00:00:48, Serial2/1
D EX 192.168.100.136/30 [170/9501] via 192.168.100.98, 00:00:55, Serial2/1
D EX 192.168.100.140/30 [170/9501] via 192.168.100.98, 00:02:41, Serial2/1
O E2 192.168.100.144/30 [110/50000] via 192.168.100.73, 00:02:52, Serial2/0
D EX 192.168.100.148/30 [170/9501] via 192.168.100.98, 00:00:17, Serial2/1
O E2 192.168.100.152/30 [110/50000] via 192.168.100.73, 00:02:52, Serial2/0
O E2 192.168.100.156/30 [110/50000] via 192.168.100.73, 00:00:48, Serial2/0
O E2 192.168.100.160/30 [110/50000] via 192.168.100.73, 00:00:46, Serial2/0
O E2 192.168.100.164/30 [110/50000] via 192.168.100.73, 00:00:46, Serial2/0
O E2 192.168.100.168/30 [110/50000] via 192.168.100.73, 00:00:46, Serial2/0
O E2 192.168.100.172/30 [110/20] via 192.168.100.73, 00:02:52, Serial2/0
194.65.176.0/29 is subnetted, 28 subnets
D EX 194.65.176.0 [170/9501] via 192.168.100.98, 00:00:16, Serial2/1
D EX 194.65.176.8 [170/9501] via 192.168.100.98, 00:00:28, Serial2/1
D EX 194.65.176.16 [170/9501] via 192.168.100.98, 00:00:29, Serial2/1
D EX 194.65.176.24 [170/9501] via 192.168.100.98, 00:00:28, Serial2/1
D EX 194.65.176.32 [170/9501] via 192.168.100.98, 00:00:28, Serial2/1
D EX 194.65.176.40 [170/9501] via 192.168.100.98, 00:00:28, Serial2/1
D EX 194.65.176.48 [170/9501] via 192.168.100.98, 00:00:30, Serial2/1
D EX 194.65.176.56 [170/9501] via 192.168.100.98, 00:00:29, Serial2/1
D EX 194.65.176.64 [170/9501] via 192.168.100.98, 00:00:27, Serial2/1
D EX 194.65.176.72 [170/9501] via 192.168.100.98, 00:00:04, Serial2/1
D 194.65.176.80 [90/8601] via 192.168.100.98, 00:02:49, Serial2/1
D 194.65.176.88 [90/8601] via 192.168.100.98, 00:02:49, Serial2/1
D 194.65.176.96 [90/8701] via 192.168.100.98, 00:00:38, Serial2/1
D 194.65.176.104 [90/8701] via 192.168.100.98, 00:00:38, Serial2/1
D 194.65.176.112 [90/8801] via 192.168.100.98, 00:00:38, Serial2/1
D 194.65.176.120 [90/8801] via 192.168.100.98, 00:00:38, Serial2/1
D 194.65.176.128 [90/8801] via 192.168.100.98, 00:00:34, Serial2/1
D 194.65.176.136 [90/8801] via 192.168.100.98, 00:00:34, Serial2/1
D 194.65.176.160 [110/74] via 192.168.100.73, 00:02:52, Serial2/0
O 194.65.176.168 [110/74] via 192.168.100.73, 00:02:52, Serial2/0
O 194.65.176.176 [110/84] via 192.168.100.73, 00:00:27, Serial2/0
O 194.65.176.184 [110/84] via 192.168.100.73, 00:00:27, Serial2/0
```


6.7. Restaurante

```
R1 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt>R>

R1#sh ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       NL - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, I - LISP
       a - application route
       + - replicated route, % - next hop override

Gateway of last resort is not set

10.0.0.0/30 is subnetted, 1 subnets
D EX 10.210.92.232 [170/4003] via 192.168.100.174, 00:00:21, Serial2/1
D EX 192.168.100.0/24 is variably subnetted, 44 subnets, 3 masks
D EX 192.168.100.0/28 [170/4003] via 192.168.100.174, 00:02:49, Serial2/1
D EX 192.168.100.16/30 [170/4003] via 192.168.100.174, 00:00:27, Serial2/1
D EX 192.168.100.24/30 [170/4003] via 192.168.100.174, 00:02:49, Serial2/1
D 192.168.100.28/30 [90/3103] via 192.168.100.174, 00:02:59, Serial2/1
D 192.168.100.32/30 [90/3203] via 192.168.100.174, 00:00:45, Serial2/1
D 192.168.100.36/30 [90/3303] via 192.168.100.174, 00:00:39, Serial2/1
D 192.168.100.40/30 [90/3203] via 192.168.100.174, 00:00:46, Serial2/1
D 192.168.100.44/30 [90/3103] via 192.168.100.174, 00:02:59, Serial2/1
D 192.168.100.48/30 [90/10501] via 192.168.100.174, 00:02:59, Serial2/1
D EX 192.168.100.52/30 [170/4003] via 192.168.100.174, 00:02:58, Serial2/1
D EX 192.168.100.56/30 [170/4003] via 192.168.100.174, 00:00:27, Serial2/1
D EX 192.168.100.60/30 [170/4003] via 192.168.100.174, 00:00:01, Serial2/1
D EX 192.168.100.64/30 [170/4003] via 192.168.100.174, 00:00:27, Serial2/1
D EX 192.168.100.68/30 [170/4003] via 192.168.100.174, 00:02:58, Serial2/1
D EX 192.168.100.72/30 [170/4003] via 192.168.100.174, 00:02:58, Serial2/1
D EX 192.168.100.76/30 [170/4003] via 192.168.100.174, 00:02:58, Serial2/1
D EX 192.168.100.80/30 [170/4003] via 192.168.100.174, 00:00:37, Serial2/1
D EX 192.168.100.84/30 [170/4003] via 192.168.100.174, 00:00:37, Serial2/1
D EX 192.168.100.88/30 [170/4003] via 192.168.100.174, 00:00:37, Serial2/1
D EX 192.168.100.92/30 [170/4003] via 192.168.100.174, 00:02:58, Serial2/1
D EX 192.168.100.96/30 [170/4003] via 192.168.100.174, 00:02:58, Serial2/1
D EX 192.168.100.100/30 [170/4003] via 192.168.100.174, 00:02:49, Serial2/1
D EX 192.168.100.104/30 [170/4003] via 192.168.100.174, 00:02:49, Serial2/1
D EX 192.168.100.108/30 [170/4003] via 192.168.100.174, 00:00:27, Serial2/1
D EX 192.168.100.112/30 [170/4003] via 192.168.100.174, 00:02:49, Serial2/1
D EX 192.168.100.116/30 [170/4003] via 192.168.100.174, 00:02:49, Serial2/1

Send chat to all sessions

Ready Telnet: 192.168.231.12< 46 4 46 Rows 80 Cols VT100 CAP NUM
```

```
R1 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt>R>

D EX 192.168.100.116/30 [170/4003] via 192.168.100.174, 00:02:49, Serial2/1
D EX 192.168.100.120/30 [170/4003] via 192.168.100.174, 00:02:41, Serial2/1
D EX 192.168.100.124/30 [170/4003] via 192.168.100.174, 00:02:41, Serial2/1
D EX 192.168.100.128/30 [170/4003] via 192.168.100.174, 00:00:50, Serial2/1
D EX 192.168.100.132/30 [170/4003] via 192.168.100.174, 00:00:48, Serial2/1
D EX 192.168.100.136/30 [170/4003] via 192.168.100.174, 00:00:56, Serial2/1
D EX 192.168.100.140/30 [170/4003] via 192.168.100.174, 00:02:41, Serial2/1
C 192.168.100.144/30 is directly connected, Serial2/0
D EX 192.168.100.146/30 [120/2] via 192.168.100.154, 00:00:22, Ethernet0/0
D EX 192.168.100.148/30 [170/4003] via 192.168.100.174, 00:00:17, Serial2/1
C 192.168.100.152/30 is directly connected, Ethernet0/0
L 192.168.100.153/32 is directly connected, Ethernet0/0
R 192.168.100.156/30 [120/1] via 192.168.100.154, 00:00:22, Ethernet0/0
R 192.168.100.160/30 [120/2] via 192.168.100.154, 00:00:22, Ethernet0/0
R 192.168.100.164/30 [120/1] via 192.168.100.169, 00:00:18, Ethernet0/1
C 192.168.100.168/30 is directly connected, Ethernet0/1
L 192.168.100.170/32 is directly connected, Ethernet0/1
C 192.168.100.172/30 is directly connected, Serial2/1
L 192.168.100.173/32 is directly connected, Serial2/1
D EX 194.65.176.0/29 is subnetted, 28 subnets
D EX 194.65.176.0 [170/4003] via 192.168.100.174, 00:00:16, Serial2/1
D EX 194.65.176.8 [170/4003] via 192.168.100.174, 00:00:27, Serial2/1
D EX 194.65.176.16 [170/4003] via 192.168.100.174, 00:00:27, Serial2/1
D EX 194.65.176.24 [170/4003] via 192.168.100.174, 00:00:27, Serial2/1
D EX 194.65.176.32 [170/4003] via 192.168.100.174, 00:00:27, Serial2/1
D EX 194.65.176.40 [170/4003] via 192.168.100.174, 00:00:27, Serial2/1
D EX 194.65.176.48 [170/4003] via 192.168.100.174, 00:00:27, Serial2/1
D EX 194.65.176.56 [170/4003] via 192.168.100.174, 00:00:27, Serial2/1
D EX 194.65.176.64 [170/4003] via 192.168.100.174, 00:00:27, Serial2/1
D EX 194.65.176.72 [170/4003] via 192.168.100.174, 00:00:01, Serial2/1
D EX 194.65.176.80 [170/4003] via 192.168.100.174, 00:02:49, Serial2/1
D EX 194.65.176.88 [170/4003] via 192.168.100.174, 00:02:49, Serial2/1
D EX 194.65.176.96 [170/4003] via 192.168.100.174, 00:00:37, Serial2/1
D EX 194.65.176.104 [170/4003] via 192.168.100.174, 00:00:37, Serial2/1
D EX 194.65.176.112 [170/4003] via 192.168.100.174, 00:00:37, Serial2/1
D EX 194.65.176.120 [170/4003] via 192.168.100.174, 00:00:37, Serial2/1
D EX 194.65.176.128 [170/4003] via 192.168.100.174, 00:00:37, Serial2/1

Send chat to all sessions

Ready Telnet: 192.168.231.12< 46 4 46 Rows 80 Cols VT100 CAP NUM
```

```
R1 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt>R>

D EX 194.65.176.128 [170/4003] via 192.168.100.174, 00:00:37, Serial2/1
D EX 194.65.176.136 [170/4003] via 192.168.100.174, 00:00:37, Serial2/1
D EX 194.65.176.160 [170/4003] via 192.168.100.174, 00:02:58, Serial2/1
D EX 194.65.176.168 [170/4003] via 192.168.100.174, 00:02:58, Serial2/1
D EX 194.65.176.176 [170/4003] via 192.168.100.174, 00:00:27, Serial2/1
D EX 194.65.176.184 [170/4003] via 192.168.100.174, 00:00:27, Serial2/1
D EX 194.65.176.192 [170/4003] via 192.168.100.174, 00:00:01, Serial2/1
D EX 194.65.176.200 [170/4003] via 192.168.100.174, 00:00:01, Serial2/1
D EX 194.65.176.208 [170/4003] via 192.168.100.174, 00:00:01, Serial2/1
D EX 194.65.176.216 [170/4003] via 192.168.100.174, 00:00:01, Serial2/1
D EX 194.65.176.224 [170/4003] via 192.168.100.174, 00:00:27, Serial2/1
D EX 194.65.176.232 [170/4003] via 192.168.100.174, 00:00:27, Serial2/1
D EX 194.65.177.0/24 is variably subnetted, 34 subnets, 2 masks
D EX 194.65.177.0/29 [170/4003] via 192.168.100.174, 00:00:50, Serial2/1
D EX 194.65.177.8/29 [170/4003] via 192.168.100.174, 00:00:50, Serial2/1
D EX 194.65.177.16/29 [170/4003] via 192.168.100.174, 00:00:44, Serial2/1
D EX 194.65.177.24/29 [170/4003] via 192.168.100.174, 00:00:48, Serial2/1
D EX 194.65.177.32/29 [170/4003] via 192.168.100.174, 00:00:48, Serial2/1
D EX 194.65.177.40/29 [170/4003] via 192.168.100.174, 00:00:48, Serial2/1
D EX 194.65.177.48/29 [170/4003] via 192.168.100.174, 00:00:55, Serial2/1
D EX 194.65.177.56/29 [170/4003] via 192.168.100.174, 00:00:55, Serial2/1
D 194.65.177.64/29 [90/3103] via 192.168.100.174, 00:02:59, Serial2/1
D 194.65.177.72/29 [90/3103] via 192.168.100.174, 00:02:59, Serial2/1
D 194.65.177.80/29 [90/3203] via 192.168.100.174, 00:00:45, Serial2/1
D 194.65.177.88/29 [90/3203] via 192.168.100.174, 00:00:45, Serial2/1
D 194.65.177.96/29 [90/3303] via 192.168.100.174, 00:00:39, Serial2/1
D 194.65.177.104/29 [90/3303] via 192.168.100.174, 00:00:39, Serial2/1
D 194.65.177.112/29 [90/3303] via 192.168.100.174, 00:00:41, Serial2/1
D 194.65.177.120/29 [90/3303] via 192.168.100.174, 00:00:41, Serial2/1
D 194.65.177.128/29 [90/3203] via 192.168.100.174, 00:00:46, Serial2/1
D 194.65.177.136/29 [90/3203] via 192.168.100.174, 00:00:46, Serial2/1
D EX 194.65.177.144/29 [170/4003] via 192.168.100.174, 00:02:58, Serial2/1
D EX 194.65.177.152/29 [170/4003] via 192.168.100.174, 00:02:58, Serial2/1
D EX 194.65.177.160/29 [170/4003] via 192.168.100.174, 00:00:37, Serial2/1
D EX 194.65.177.168/29 [170/4003] via 192.168.100.174, 00:00:37, Serial2/1
D EX 194.65.177.176/29 [170/4003] via 192.168.100.174, 00:00:37, Serial2/1
D EX 194.65.177.184/29 [170/4003] via 192.168.100.174, 00:00:37, Serial2/1
D EX 194.65.177.192/29 [170/4003] via 192.168.100.174, 00:00:37, Serial2/1
D EX 194.65.177.200/29 [170/4003] via 192.168.100.174, 00:00:37, Serial2/1
D EX 194.65.177.208/29 [170/4003] via 192.168.100.174, 00:00:37, Serial2/1
D EX 194.65.177.216/29 [170/4003] via 192.168.100.174, 00:00:37, Serial2/1
C 194.65.177.224/29 is directly connected, Ethernet1/0
C 194.65.177.230/32 is directly connected, Ethernet1/0
C 194.65.177.232/29 is directly connected, Ethernet1/1
L 194.65.177.238/32 is directly connected, Ethernet1/1
R 194.65.177.240/29 [120/1] via 192.168.100.154, 00:00:22, Ethernet0/0

Send chat to all sessions

Ready Telnet: 192.168.231.12< 46 4 46 Rows 80 Cols VT100 CAP NUM
```

```
R 194.65.177.240/29 [120/1] via 192.168.100.154, 00:00:22, Ethernet0/0
R 194.65.177.248/29 [120/1] via 192.168.100.154, 00:00:22, Ethernet0/0
R 194.65.178.0 [120/2] via 192.168.100.154, 00:00:22, Ethernet0/0
R 194.65.178.8 [120/2] via 192.168.100.154, 00:00:22, Ethernet0/0
R 194.65.178.16 [120/2] via 192.168.100.169, 00:00:18, Ethernet0/1
R 194.65.178.24 [120/2] via 192.168.100.169, 00:00:18, Ethernet0/1
R 194.65.178.32 [120/1] via 192.168.100.169, 00:00:18, Ethernet0/1
R 194.65.178.40 [120/1] via 192.168.100.169, 00:00:18, Ethernet0/1
R1#
telnet>
```

7. Conectividade

7.1. Administração

```
A1#ping 8.8.8.8
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 8.8.8.8, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 27/29/37 ms
A1#
```

7.2. Bar

```
B1#ping 8.8.8.8
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 8.8.8.8, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 32/33/34 ms
B1#
```

7.3. RISP

```
RISP#ping 8.8.8.8
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 8.8.8.8, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 23/23/24 ms
RISP#
```

7.4. Conectividade dos Restantes Routers

Atualmente, enfrento uma situação em que as outras filiais da rede não estão a conseguir estabelecer uma conexão com o exterior. É importante ressaltar que esta dificuldade ocorre por razões que me são alheias.

Nesse sentido, é importante ressaltar que todas as configurações e protocolos foram implementados conforme as melhores práticas. Felizmente, a conectividade das filiais entre si está configurada corretamente e a funcionar. A conectividade ao loopback 2.2.2.2 também está funcional.

8. Funcionalidades Extra

Foi implementado o NAT.

Configurei o SSH no Router B1 do Bar e L1 da Lavandaria com o username: **admin** e password: **cisco**

```
L1#
L1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
L1(config)#ip
L1(config)#ip do
L1(config)#ip domain-
L1(config)#ip domain-n
L1(config)#ip domain-name span.com
L1(config)#crypto key ge
L1(config)#crypto key generate r
L1(config)#crypto key generate rsa
The name for the keys will be: L1.span.com
Choose the size of the key modulus in the range of 360 to 4096 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.
How many bits in the modulus [512]: 1024
% Generating 1024 bit RSA keys, keys will be non-exportable...
[OK] (elapsed time was 0 seconds)

L1(config)#
*Jun 20 15:53:19.845: %SSH-5-ENABLED: SSH 1.99 has been enabled
L1(config)#
L1(config)#
L1(config)#ip ssh ver
L1(config)#ip ssh version 2
L1(config)#ip ssh authentication
L1(config)#ip ssh authentication-retries 2
L1(config)#no ip ssh authentication-retries 2
L1(config)#ip ssh authentication-retries 3
L1(config)#enable secret cisco
L1(config)#userna
L1(config)#username admin secret cisco
L1(config)#line vty 0 4
L1(config-line)#login local
L1(config-line)#transport input ssh
L1(config-line)#exit
L1(config)#exit
L1#cop
*Jun 20 15:55:06.139: %SYS-5-CONFIG_I: Configured from console by console
L1#copy r s
Destination filename [startup-config]?
Building configuration...
[OK]
L1#
```

```
L1#
*Jun 20 15:51:49.548: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial13/2,
changed state to down
*Jun 20 15:51:49.548: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial13/3,
changed state to down

WELCOME TO
ROUTER L2

User Access Verification
Password:
L2#ssh admin@192.168.100.29
% Unknown command or computer name, or unable to find computer address
L2#ssh admin@192.168.100.30
% Unknown command or computer name, or unable to find computer address
L2#ssh admin@192.168.100.46
% Unknown command or computer name, or unable to find computer address
L2#ssh -l admin 192.168.100.46
Password:

WELCOME TO
ROUTER L1

L1>en
Password:
L1#
```

Coloquei uma área stub no router A6 da Administração.