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1. Subnetting

1.1. Asignación de direcciones IP a las redes

Subnet	Nombre	Hosts	Direcciones	Dirección	Máscara
A	A	125	128	201.158.15.0	255.255.255.128
B	B	17	32	20.86.15.0	255.255.255.224
C	C	12	16	10.31.25.128	255.255.255.240
D	D	223	256	20.64.73.0	255.255.255.0
E	E	69	128	10.31.25.0	255.255.255.128
F	F	19	32	20.86.15.32	255.255.255.224
G	G	2	4	10.31.25.152	255.255.255.252
H	H	2	4	10.31.25.156	255.255.255.252
I	I	10 PPP			
I1		2	4	151.40.3.192	255.255.255.252
I2		2	4	151.40.3.196	255.255.255.252
I3		2	4	151.40.3.200	255.255.255.252
I4		2	4	151.40.3.204	255.255.255.252
I5		2	4	151.40.3.208	255.255.255.252
I6		2	4	151.40.3.212	255.255.255.252
I7		2	4	151.40.3.216	255.255.255.252
I8		2	4	151.40.3.220	255.255.255.252
I9		2	4	151.40.3.224	255.255.255.252
I10		2	4	151.40.3.228	255.255.255.252
J	J	43	64	20.86.15.64	255.255.255.192
K	K	6	8	10.31.25.144	255.255.255.248
L	L	240	256	20.26.29.0	255.255.255.0
M1	M1	68	128	20.86.15.128	255.255.255.128
M2	M2	18	32	10.31.25.160	255.255.255.224
N privada	N	2	4	10.31.25.160	255.255.255.252
O privada	O	2	4	10.31.25.164	255.255.255.252
P privada	P	2	4	10.31.25.168	255.255.255.252
Q1 Publica	Q1	2	4	150.38.27.0	255.255.255.252
Q2 Publica	Q2	2	4	150.38.27.4	255.255.255.252
Q3 Publica	Q3	2	4	150.38.27.8	255.255.255.252

1.1.1. Asignación IP a routers, servers, hosts

Subred	Dispositivo	Interfaz	Dirección	Máscara
A				
	WebServer		201.158.15.1	255.255.255.128
	Host A		201.158.15.2	255.255.255.128
	R4	e0/0	201.158.15.3	255.255.255.128
	R5	e0/0	201.158.15.4	255.255.255.128
	R2	e0/0	201.158.15.5	255.255.255.128
	R3	e0/2	201.158.15.6	255.255.255.128
	Virtual A		201.158.15.7	255.255.255.128
B				
	R1	e0/0	20.86.15.1	255.255.255.224
	R3	e0/0	20.86.15.2	255.255.255.224
C				
	R1	e0/1	10.31.25.129	255.255.255.240
	R3	e0/1	10.31.25.130	255.255.255.240
D				
	R5	e0/1	20.64.73.1	255.255.255.0
	R4	e0/1	20.64.73.2	255.255.255.0
	DNS-ROOT		20.64.73.3	255.255.255.0
	R8	e0/0	20.64.73.4	255.255.255.0
	Virtual D		20.64.73.5	255.255.255.0
E				
	FTP-Server		10.31.25.1	255.255.255.128
	R12	e0/0	10.31.25.2	255.255.255.128
	DNS1		10.31.25.3	255.255.255.128
	R15	e0/2	10.31.25.4	255.255.255.128
	R13	e0/1	10.31.25.5	255.255.255.128
F				
	R13	e0/0	20.86.15.33	255.255.255.224
	Host C		20.86.15.34	255.255.255.224
	R14	e0/1	20.86.15.35	255.255.255.224
G				
	R10	e1/2	10.31.25.153	255.255.255.252
	R13	e0/2	10.31.25.154	255.255.255.252
H				
	R8	e0/1	10.31.25.157	255.255.255.252
	R7	e1/1	10.31.25.158	255.255.255.252
I1				
	R2	s1/0.1	151.40.3.193	255.255.255.252
	R17	s1/0.1	151.40.3.194	255.255.255.252
I2				
	R2	s1/0.2	151.40.3.197	255.255.255.252
	R16	s1/0.1	151.40.3.198	255.255.255.252
I3				
	R2	s1/0.3	151.40.3.201	255.255.255.252
	R9	s1/0.1	151.40.3.202	255.255.255.252

Subred	Dispositivo	Interfaz	Dirección	Máscara
I4				
	R2	s1/0.4	151.40.3.205	255.255.255.252
	R6	s1/0.1	151.40.3.206	255.255.255.252
I5				
	R17	s1/0.2	151.40.3.209	255.255.255.252
	R16	s1/0.2	151.40.3.210	255.255.255.252
I6				
	R17	s1/0.3	151.40.3.213	255.255.255.252
	R9	s1/0.2	151.40.3.214	255.255.255.252
I7				
	R17	s1/0.4	151.40.3.217	255.255.255.252
	R6	s1/0.2	151.40.3.218	255.255.255.252
I8				
	R16	s1/0.3	151.40.3.221	255.255.255.252
	R9	s1/0.3	151.40.3.222	255.255.255.252
I9				
	R16	s1/0.4	151.40.3.225	255.255.255.252
	R6	s1/0.3	151.40.3.226	255.255.255.252
I10				
	R9	s1/0.4	151.40.3.229	255.255.255.252
	R6	s1/0.4	151.40.3.230	255.255.255.252
J				
	R17	e0/0	20.86.15.65	255.255.255.192
	R16	e0/0	20.86.15.66	255.255.255.192
	R14	e0/0	20.86.15.67	255.255.255.192
	R15	e0/0	20.86.15.68	255.255.255.192
K				
	R15	e0/1	10.31.25.145	255.255.255.248
L				
	R7	e1/0	20.26.29.1	255.255.255.0
	R6	e0/0	20.26.29.2	255.255.255.0
	R9	e0/0	20.26.29.3	255.255.255.0
	Tel-Server		20.26.29.129	255.255.255.0
M1				
	Host B		20.86.15.129	255.255.255.128
	Tel-Server		20.86.15.130	255.255.255.128
	R11	e0/0	20.86.15.132	255.255.255.128
	R10	e1/1	20.86.15.133	255.255.255.128
M2				
	R10	e1/0	10.31.25.193	255.255.255.224
	DNS2		10.31.25.194	255.255.255.224
N				
	R8	e	10.31.25.161	255.255.255.252
	R11	e	10.31.25.162	255.255.255.252

Subred	Dispositivo	Interfaz	Dirección	Máscara
O				
	R8	e	10.31.25.165	255.255.255.252
	R12	e	10.31.25.166	255.255.255.252
P				
	R12	e	10.31.25.169	255.255.255.252
	R11	e	10.31.25.170	255.255.255.252
Q1				
	R8	e0/2	150.38.27.1	255.255.255.252
	INTERNET	e1/0	150.38.27.2	255.255.255.252
Q2				
	R11	e0/1	150.38.27.5	255.255.255.252
	INTERNET	e1/1	150.38.27.6	255.255.255.252
Q3				
	R12	e0/1	150.38.27.9	255.255.255.252
	INTERNET	e1/2	150.38.27.10	255.255.255.252

1.1.2. Asignación IP a routers en Frame Relay

Subnet	Device	Interface	Address	Mask	DLCI
I1	R2	s1/0.1	151.40.3.193	255.255.255.252	217
	R17	s1/0.1	151.40.3.194	255.255.255.252	172
I2	R2	s1/0.2	151.40.3.197	255.255.255.252	216
	R16	s1/0.1	151.40.3.198	255.255.255.252	162
I3	R2	s1/0.3	151.40.3.201	255.255.255.252	209
	R9	s2/0.1	151.40.3.202	255.255.255.252	902
I4	R2	s1/0.4	151.40.3.205	255.255.255.252	206
	R6	s1/0.1	151.40.3.206	255.255.255.252	602
I5	R17	s1/0.2	151.40.3.209	255.255.255.252	807
	R16	s1/0.2	151.40.3.210	255.255.255.252	708
I6	R17	s1/0.3	151.40.3.213	255.255.255.252	179
	R9	s2/0.2	151.40.3.214	255.255.255.252	917
I7	R17	s1/0.4	151.40.3.217	255.255.255.252	176
	R6	s1/0.2	151.40.3.218	255.255.255.252	617
I8	R16	s1/0.3	151.40.3.221	255.255.255.252	169
	R9	s2/0.3	151.40.3.222	255.255.255.252	916
I9	R16	s1/0.4	151.40.3.225	255.255.255.252	166
	R6	s1/0.3	151.40.3.226	255.255.255.252	616
I10	R9	s2/0.4	151.40.3.229	255.255.255.252	906
	R6	s1/0.4	151.40.3.230	255.255.255.252	609

1.2. Tablas de Ruteo de Córdoba

1.2.1. R1

Red	Dirección de Red	Máscara	Sig. Salto	Dir. Sig. Salto	Métrica
	0.0.0.0	0.0.0.0	R3	20.86.15.2	1

1.2.2. R2

Red	Dirección de Red	Máscara	Sig. Salto	Dir. Sig. Salto	Métrica
A	Directamente conectado				
B	20.86.15.0	255.255.255.224	R3	201.158.15.6	1
C	10.31.25.128	255.255.255.240	R3	201.158.15.6	1
D	20.64.73.0	255.255.255.0	Virtual-A	201.158.15.7	1
E	10.31.25.0	255.255.255.128	R17	151.40.3.194	1
F	20.86.15.32	255.255.255.224	R17	151.40.3.194	1
G	10.31.25.152	255.255.255.252	R17	151.40.3.194	1
H	10.31.25.156	255.255.255.252	Virtual-A	201.158.15.7	1
I					
I1	Directamente conectado				
I2	Directamente conectado				
I3	Directamente conectado				
I4	Directamente conectado				
I5	151.40.3.208	255.255.255.252	R17	151.40.3.194	1
I6	151.40.3.212	255.255.255.252	R17	151.40.3.194	1
I7	151.40.3.216	255.255.255.252	R17	151.40.3.198	1
I8	151.40.3.220	255.255.255.252	R16	151.40.3.198	1
I9	151.40.3.224	255.255.255.252	R16	151.40.3.198	1
I10	151.40.3.228	255.255.255.252	R9	151.40.3.202	1
J	20.86.15.64	255.255.255.192	R17	151.40.3.194	1
K	10.31.25.144	255.255.255.248	R17	151.40.3.194	1
L	20.26.29.0	255.255.255.0	R9	151.40.3.202	1
M1	20.86.15.128	255.255.255.128	Virtual-A	201.158.15.7	1
M2	10.31.25.192	255.255.255.224	Virtual-A	201.158.15.7	1
N	10.31.25.160	255.255.255.252	Virtual-A	201.158.15.7	1
O	10.31.25.164	255.255.255.252	Virtual-A	201.158.15.7	1
P	10.31.25.168	255.255.255.252	Virtual-A	201.158.15.7	1

1.2.3. R3

Red	Dirección de Red	Máscara	Sig. Salto	Dir. Sig. Salto	Métrica
A	Directamente conectado				
B	Directamente conectado				
C	Directamente conectado				
D	20.64.73.0	255.255.255.0	Virtual-A	201.158.15.7	1
E	10.31.25.0	255.255.255.128	R2	201.158.15.5	1
F	20.86.15.32	255.255.255.224	R2	201.158.15.5	1
G	10.31.25.152	255.255.255.252	R2	201.158.15.5	1
H	10.31.25.156	255.255.255.252	Virtual-A	201.158.15.7	1
I					
I1	151.40.3.192	255.255.255.252	R2	201.158.15.5	1
I2	151.40.3.196	255.255.255.252	R2	201.158.15.5	1
I3	151.40.3.200	255.255.255.252	R2	201.158.15.5	1
I4	151.40.3.204	255.255.255.252	R2	201.158.15.5	1
I5	151.40.3.208	255.255.255.252	R2	201.158.15.5	1
I6	151.40.3.212	255.255.255.252	R2	201.158.15.5	1
I7	151.40.3.216	255.255.255.252	R2	201.158.15.5	1
I8	151.40.3.220	255.255.255.252	R2	201.158.15.5	1
I9	151.40.3.224	255.255.255.252	R2	201.158.15.5	1
I10	151.40.3.228	255.255.255.252	R2	201.158.15.5	1
J	20.86.15.64	255.255.255.192	R2	201.158.15.5	1
K	10.31.25.144	255.255.255.248	R2	201.158.15.5	1
L	20.26.29.0	255.255.255.0	R2	201.158.15.5	1
M1	20.86.15.128	255.255.255.128	Virtual-A	201.158.15.7	1
M2	10.31.25.192	255.255.255.224	Virtual-A	201.158.15.7	1
N	10.31.25.160	255.255.255.252	Virtual-A	201.158.15.7	1
O	10.31.25.164	255.255.255.252	Virtual-A	201.158.15.7	1
P	10.31.25.168	255.255.255.252	R2	201.158.15.5	1

1.2.4. R4 y R5 (routers VRRP)

Red	Dirección de Red	Máscara	Sig. Salto	Dir. Sig. Salto	Métrica
A	Directamente conectado				
B	20.86.15.0	255.255.255.224	R3	201.158.15.6	1
C	10.31.25.128	255.255.255.240	R3	201.158.15.6	1
D	Directamente conectado				
E	10.31.25.0	255.255.255.128	R2	201.158.15.5	1
F	20.86.15.32	255.255.255.224	R2	201.158.15.5	1
G	10.31.25.152	255.255.255.252	R2	201.158.15.5	1
H	10.31.25.156	255.255.255.252	R8	20.64.73.4	1
I					
I1	151.40.3.192	255.255.255.252	R2	201.158.15.5	1
I2	151.40.3.196	255.255.255.252	R2	201.158.15.5	1
I3	151.40.3.200	255.255.255.252	R2	201.158.15.5	1
I4	151.40.3.204	255.255.255.252	R2	201.158.15.5	1
I5	151.40.3.208	255.255.255.252	R2	201.158.15.5	1
I6	151.40.3.212	255.255.255.252	R2	201.158.15.5	1
I7	151.40.3.216	255.255.255.252	R2	201.158.15.5	1
I8	151.40.3.220	255.255.255.252	R2	201.158.15.5	1
I9	151.40.3.224	255.255.255.252	R2	201.158.15.5	1
I10	151.40.3.228	255.255.255.252	R2	201.158.15.5	1
J	20.86.15.64	255.255.255.192	R2	201.158.15.5	1
K	10.31.25.144	255.255.255.248	R2	201.158.15.5	1
L	20.26.29.0	255.255.255.0	R8	20.64.73.4	1
M1	20.86.15.128	255.255.255.128	R8	20.64.73.4	1
M2	10.31.25.192	255.255.255.224	R8	20.64.73.4	1
N	10.31.25.160	255.255.255.252	R8	20.64.73.4	1
O	10.31.25.164	255.255.255.252	R8	20.64.73.4	1
P	10.31.25.168	255.255.255.252	R8	20.64.73.4	1

1.2.5. R8

REVISAR POR REDES: E, F, G, J, K, M1, M2, P

Red	Dirección de Red	Máscara	Sig. Salto	Dir. Sig. Salto	Métrica
A	201.158.15.0	255.255.255.128	Virtual-D	20.64.73.5	1
B	20.86.15.0	255.255.255.224	Virtual-D	20.64.73.5	1
C	10.31.25.128	255.255.255.240	Virtual-D	20.64.73.5	1
D	Directamente conectado				
E	10.31.25.0	255.255.255.128	R12	10.31.25.166	1
F	20.86.15.32	255.255.255.224	R12	10.31.25.166	1
G	10.31.25.152	255.255.255.252	R12	10.31.25.166	1
H	Directamente conectado				
I					
I1	151.40.3.192	255.255.255.252	Virtual-D	20.64.73.5	1
I2	151.40.3.196	255.255.255.252	Virtual-D	20.64.73.5	1
I3	151.40.3.200	255.255.255.252	Virtual-D	20.64.73.5	1
I4	151.40.3.204	255.255.255.252	Virtual-D	20.64.73.5	1
I5	151.40.3.208	255.255.255.252	Virtual-D	20.64.73.5	1
I6	151.40.3.212	255.255.255.252	Virtual-D	20.64.73.5	1
I7	151.40.3.216	255.255.255.252	Virtual-D	20.64.73.5	1
I8	151.40.3.220	255.255.255.252	Virtual-D	20.64.73.5	1
I9	151.40.3.224	255.255.255.252	Virtual-D	20.64.73.5	1
I10	151.40.3.228	255.255.255.252	Virtual-D	20.64.73.5	1
J	20.86.15.64	255.255.255.192	R12	10.31.25.166	1
K	10.31.25.144	255.255.255.248	R12	10.31.25.166	1
L	20.26.29.0	255.255.255.0	R7	10.31.25.158	1
M1	20.86.15.128	255.255.255.128	R11	10.31.25.162	1
M2	10.31.25.192	255.255.255.224	R11	10.31.25.162	1
N	Directamente conectada				
O	Directamente conectada				
P	10.31.25.168	255.255.255.252	R12	10.31.25.166	1

1.3. Tablas de Ruteo de Calamuchita

1.3.1. R6

Red	Dirección de Red	Máscara	Sig. Salto	Dir. Sig. Salto	Métrica
A	201.158.15.0	255.255.255.128	R2	151.40.3.205	1
B	20.86.15.0	255.255.255.224	R2	151.40.3.205	1
C	10.31.25.128	255.255.255.240	R2	151.40.3.205	1
D	20.64.73.0	255.255.255.0	R7	20.26.29.1	1
E	10.31.25.0	255.255.255.128	R17	151.40.3.217	1
F	20.86.15.32	255.255.255.224	R17	151.40.3.217	1
G	10.31.25.152	255.255.255.252	R17	151.40.3.217	1
H	10.31.25.156	255.255.255.252	R7	20.26.29.1	1
I					
I1	151.40.3.192	255.255.255.252	R2	151.40.3.205	1
I2	151.40.3.196	255.255.255.252	R2	151.40.3.205	1
I3	151.40.3.200	255.255.255.252	R2	151.40.3.205	1
I4	Directamente conectado				
I5	151.40.3.208	255.255.255.252	R17	151.40.3.217	1
I6	151.40.3.212	255.255.255.252	R17	151.40.3.217	1
I7	Directamente conectado				
I8	151.40.3.220	255.255.255.252	R8	151.40.3.229	1
I9	Directamente conectado				
I10	Directamente conectado				
J	20.86.15.64	255.255.255.192	R17	151.40.3.217	1
K	10.31.25.144	255.255.255.248	R17	151.40.3.217	1
L	Directamente conectado				
M1	20.86.15.128	255.255.255.128	R7	20.26.29.1	1
M2	10.31.25.192	255.255.255.224	R7	20.26.29.1	1
N	10.31.25.160	255.255.255.252	R7	20.26.29.1	1
O	10.31.25.164	255.255.255.252	R7	20.26.29.1	1
P	10.31.25.168	255.255.255.252	R7	20.26.29.1	1

1.3.2. R7

Red	Dirección de Red	Máscara	Sig. Salto	Dir. Sig. Salto	Métrica
A	201.158.15.0	255.255.255.128	R6	20.26.29.2	1
B	20.86.15.0	255.255.255.224	R6	20.26.29.2	1
C	10.31.25.128	255.255.255.240	R6	20.26.29.2	1
D	20.64.73.0	255.255.255.0	R8	10.31.25.157	1
E	10.31.25.0	255.255.255.128	R6	20.26.29.2	1
F	20.86.15.32	255.255.255.224	R6	20.26.29.2	1
G	10.31.25.152	255.255.255.252	R6	20.26.29.2	1
H	Directamente conectado				
I					
I1	151.40.3.192	255.255.255.252	R6	20.26.29.2	1
I2	151.40.3.196	255.255.255.252	R6	20.26.29.2	1
I3	151.40.3.200	255.255.255.252	R6	20.26.29.2	1
I4	151.40.3.204	255.255.255.252	R6	20.26.29.2	1
I5	151.40.3.208	255.255.255.252	R6	20.26.29.2	1
I6	151.40.3.212	255.255.255.252	R6	20.26.29.2	1
I7	151.40.3.216	255.255.255.252	R6	20.26.29.2	1
I8	151.40.3.220	255.255.255.252	R6	20.26.29.2	1
I9	151.40.3.224	255.255.255.252	R6	20.26.29.2	1
I10	151.40.3.228	255.255.255.252	R6	20.26.29.2	1
J	20.86.15.64	255.255.255.192	R6	20.26.29.2	1
K	10.31.25.144	255.255.255.248	R6	20.26.29.2	1
L	Directamente conectada				
M1	20.86.15.128	255.255.255.128	R8	10.31.25.157	1
M2	10.31.25.192	255.255.255.224	R8	10.31.25.157	1
N	10.31.25.160	255.255.255.252	R8	10.31.25.157	1
O	10.31.25.164	255.255.255.252	R8	10.31.25.157	1
P	10.31.25.168	255.255.255.252	R8	10.31.25.157	1

1.3.3. R9

Red	Dirección de Red	Máscara	Sig. Salto	Dir. Sig. Salto	Métrica
A	201.158.15.0	255.255.255.128	R2	151.40.3.201	1
B	20.86.15.0	255.255.255.224	R2	151.40.3.201	1
C	10.31.25.128	255.255.255.240	R2	151.40.3.201	1
D	20.64.73.0	255.255.255.0	R2	151.40.3.201	1
E	10.31.25.0	255.255.255.128	R17	151.40.3.213	1
F	20.86.15.32	255.255.255.224	R17	151.40.3.213	1
G	10.31.25.152	255.255.255.252	R17	151.40.3.213	1
H	10.31.25.156	255.255.255.252	R7	20.26.29.1	1
I					
I1	151.40.3.192	255.255.255.252	R2	151.40.3.201	1
I2	151.40.3.196	255.255.255.252	R2	151.40.3.201	1
I3	Directamente conectada				
I4	151.40.3.204	255.255.255.252	R2	151.40.3.201	1
I5	151.40.3.208	255.255.255.252	R17	151.40.3.213	1
I6	Directamente conectada				
I7	151.40.3.216	255.255.255.252	R17	151.40.3.213	1
I8	Directamente conectada				
I9	151.40.3.224	255.255.255.252	R6	20.86.15.2	1
I10	Directamente conectada				
J	20.86.15.64	255.255.255.192	R17	151.40.3.213	1
K	10.31.25.144	255.255.255.248	R17	151.40.3.213	1
L	Directamente conectada				
M1	20.86.15.128	255.255.255.128	R7	20.26.29.1	1
M2	10.31.25.192	255.255.255.224	R7	20.26.29.1	1
N	10.31.25.160	255.255.255.252	R7	20.26.29.1	1
O	10.31.25.164	255.255.255.252	R7	20.26.29.1	1
P	10.31.25.168	255.255.255.252	R7	20.26.29.1	1

1.3.4. R10

Red	Dirección de Red	Máscara	Sig. Salto	Dir. Sig. Salto	Métrica
A	201.158.15.0	255.255.255.128	R11	20.86.15.132	1
B	20.86.15.0	255.255.255.224	R11	20.86.15.132	1
C	10.31.25.128	255.255.255.240	R11	20.86.15.132	1
D	20.64.73.0	255.255.255.0	R11	20.86.15.132	1
E	10.31.25.0	255.255.255.128	R13	10.31.25.154	1
F	20.86.15.32	255.255.255.224	R13	10.31.25.154	1
G	Directamente conectada				
H	10.31.25.156	255.255.255.252	R11	20.86.15.132	1
I					
I1	151.40.3.192	255.255.255.252	R13	10.31.25.154	1
I2	151.40.3.196	255.255.255.252	R13	10.31.25.154	1
I3	151.40.3.200	255.255.255.252	R13	10.31.25.154	1
I4	151.40.3.204	255.255.255.252	R13	10.31.25.154	1
I5	151.40.3.208	255.255.255.252	R13	10.31.25.154	1
I6	151.40.3.212	255.255.255.252	R13	10.31.25.154	1
I7	151.40.3.216	255.255.255.252	R13	10.31.25.154	1
I8	151.40.3.220	255.255.255.252	R13	10.31.25.154	1
I9	151.40.3.224	255.255.255.252	R13	10.31.25.154	1
I10	151.40.3.228	255.255.255.252	R13	10.31.25.154	1
J	20.86.15.64	255.255.255.192	R13	10.31.25.154	1
K	10.31.25.144	255.255.255.248	R13	10.31.25.154	1
L	20.26.29.0	255.255.255.0	R11	20.86.15.132	1
M1	Directamente conectada				
M2	Directamente conectada				
N	10.31.25.160	255.255.255.252	R11	20.86.15.132	1
O	10.31.25.164	255.255.255.252	R11	20.86.15.132	1
P	10.31.25.168	255.255.255.252	R11	20.86.15.132	1

1.3.5. R11

REVISAR POR REDES: A, B, C, D, E, H, J, K, L, O

Red	Dirección de Red	Máscara	Sig. Salto	Dir. Sig. Salto	Métrica
A	201.158.15.0	255.255.255.128	R8	10.31.25.161	1
B	20.86.15.0	255.255.255.224	R8	10.31.25.161	1
C	10.31.25.128	255.255.255.240	R8	10.31.25.161	1
D	20.64.73.0	255.255.255.0	R8	10.31.25.161	1
E	10.31.25.0	255.255.255.128	R12	10.31.25.169	1
F	20.86.15.32	255.255.255.224	R10	20.86.15.133	1
G	10.31.25.152	255.255.255.252	R10	20.86.15.133	1
H	10.31.25.156	255.255.255.252	R8	10.31.25.161	1
I					
I1	151.40.3.192	255.255.255.252	R10	20.86.15.133	1
I2	151.40.3.196	255.255.255.252	R10	20.86.15.133	1
I3	151.40.3.200	255.255.255.252	R10	20.86.15.133	1
I4	151.40.3.204	255.255.255.252	R10	20.86.15.133	1
I5	151.40.3.208	255.255.255.252	R10	20.86.15.133	1
I6	151.40.3.212	255.255.255.252	R10	20.86.15.133	1
I7	151.40.3.216	255.255.255.252	R10	20.86.15.133	1
I8	151.40.3.220	255.255.255.252	R10	20.86.15.133	1
I9	151.40.3.224	255.255.255.252	R10	20.86.15.133	1
I10	151.40.3.228	255.255.255.252	R10	20.86.15.133	1
J	20.86.15.64	255.255.255.192	R12	10.31.25.169	1
K	10.31.25.144	255.255.255.248	R12	10.31.25.169	1
L	20.26.29.0	255.255.255.0	R8	10.31.25.161	1
M1	Directamente conectada				
M2	10.31.25.192	255.255.255.224	R10	20.86.15.133	1
N	Directamente conectada				
O	10.31.25.164	255.255.255.252	R8	10.31.25.161	1
P	Directamente conectada				

1.4. Tablas de Ruteo de La Falda

Para los siguientes routers será necesario tener en cuenta que se implementará OSPF de manera interna, por lo tanto el ruteo estático necesario será para conectar con las otras zonas, siendo únicamente configurado en los routers frontera. Por lo tanto, las redes que no aparezcan en las siguientes tablas serán aquellas para las cuales se aprenderán las rutas por medio del protocolo de enrutamiento dinámico.

1.4.1. R12

Red	Dirección de Red	Máscara	Sig. Salto	Dir. Sig. Salto	Métrica
A	201.158.15.0	255.255.255.128	R8	10.31.25.165	1
B	20.86.15.0	255.255.255.224	R8	10.31.25.165	1
C	10.31.25.128	255.255.255.240	R8	10.31.25.165	1
D	20.64.73.0	255.255.255.0	R8	10.31.25.165	1
E	Directamente conectada				
H	10.31.25.156	255.255.255.252	R8	10.31.25.165	1
L	20.26.29.0	255.255.255.0	R8	10.31.25.165	1
M1	20.86.15.128	255.255.255.128	R11	10.31.25.170	1
N	10.31.25.160	255.255.255.252	R11	10.31.25.170	1
O	Directamente conectada				
P	Directamente conectada				

1.4.2. R13

Red	Dirección de Red	Máscara	Sig. Salto	Dir. Sig. Salto	Métrica
L	20.26.29.0	255.255.255.0	R10	10.31.25.153	1
M1	20.86.15.128	255.255.255.128	R10	10.31.25.153	1
M2	10.31.25.192	255.255.255.224	R10	10.31.25.153	1

1.4.3. R14 y R15

Al ser R14 y R15 routers internos (i.e. sin conexiones a subredes externas a la zona de La Falda), aprenderán de todas las rutas por el protocolo OSPF, sin publicar rutas estáticas.

1.4.4. R16

Red	Dirección de Red	Máscara	Sig. Salto	Dir. Sig. Salto	Métrica
A	201.158.15.0	255.255.255.128	R2	151.40.3.197	1
B	20.86.15.0	255.255.255.224	R2	151.40.3.197	1
C	10.31.25.128	255.255.255.240	R2	151.40.3.197	1
D	20.64.73.0	255.255.255.0	R2	151.40.3.197	1
I					
I2	Directamente conectada				
I3	151.40.3.200	255.255.255.252	R2	151.40.3.197	1
I4	151.40.3.204	255.255.255.252	R2	151.40.3.197	1
I5	Directamente conectada				
I8	Directamente conectada				
I9	Directamente conectada				
I10	151.40.3.228	255.255.255.252	R9	151.40.3.222	1
L	20.26.29.0	255.255.255.0	R6	151.40.3.226	1

1.4.5. R17

Red	Dirección de Red	Máscara	Sig. Salto	Dir. Sig. Salto	Métrica
A	201.158.15.0	255.255.255.128	R2	151.40.3.193	1
B	20.86.15.0	255.255.255.224	R2	151.40.3.193	1
C	10.31.25.128	255.255.255.240	R2	151.40.3.193	1
D	20.64.73.0	255.255.255.0	R2	151.40.3.193	1
I					
I1	Directamente conectada				
I2	151.40.3.196	255.255.255.252	R2	151.40.3.193	1
I3	151.40.3.200	255.255.255.252	R2	151.40.3.193	1
I4	151.40.3.204	255.255.255.252	R2	151.40.3.193	1
I5	Directamente conectada				
I6	Directamente conectada				
I7	Directamente conectada				
I10	151.40.3.228	255.255.255.252	R9	151.40.3.214	1
L	20.26.29.0	255.255.255.0	R6	151.40.3.218	1

1.5. Tablas de Ruteo de Hosts y servicios

A continuación se detallan las tablas de ruteo de los distintos hosts y servicios a implementar en el trabajo práctico.

1.5.1. Host A y Webserver

Dado que el host A y el webserver se encuentran dentro de la misma red (Red A), no hay ninguna razón para que no tengan la misma tabla de ruteo (lo cual permite que tengamos un único script, simplificando el trabajo).

Red	Dirección de Red	Máscara	Sig. Salto	Dir. Sig. Salto	Métrica
A	Directamente conectada				
B	20.86.15.0	255.255.255.224	R3	201.158.15.6	1
C	10.31.25.128	255.255.255.240	R3	201.158.15.6	1
D	20.64.73.0	255.255.255.0	Virtual-A	201.158.15.7	1
E	10.31.25.0	255.255.255.128	Virtual-A	201.158.15.7	1
F	20.86.15.32	255.255.255.224	R2	201.158.15.5	1
G	10.31.25.152	255.255.255.252	R2	201.158.15.5	1
H	10.31.25.156	255.255.255.252	Virtual-A	201.158.15.7	1
I					
I1	151.40.3.192	255.255.255.252	R2	201.158.15.5	1
I2	151.40.3.196	255.255.255.252	R2	201.158.15.5	1
I3	151.40.3.200	255.255.255.252	R2	201.158.15.5	1
I4	151.40.3.204	255.255.255.252	R2	201.158.15.5	1
I5	151.40.3.208	255.255.255.252	R2	201.158.15.5	1
I6	151.40.3.212	255.255.255.252	R2	201.158.15.5	1
I7	151.40.3.216	255.255.255.252	R2	201.158.15.5	1
I8	151.40.3.220	255.255.255.252	R2	201.158.15.5	1
I9	151.40.3.224	255.255.255.252	R2	201.158.15.5	1
I10	151.40.3.228	255.255.255.252	R2	201.158.15.5	1
J	20.86.15.64	255.255.255.192	R2	201.158.15.5	1
K	10.31.25.144	255.255.255.248	R2	201.158.15.5	1
L	20.26.29.0	255.255.255.0	R2	201.158.15.5	1
M1	20.86.15.128	255.255.255.128	Virtual-A	201.158.15.7	1
M2	10.31.25.192	255.255.255.224	Virtual-A	201.158.15.7	1

1.5.2. Host B

Red	Dirección de Red	Máscara	Sig. Salto	Dir. Sig. Salto	Métrica
A	201.158.15.0	255.255.255.128	R11	20.86.15.132	1
B	20.86.15.0	255.255.255.224	R11	20.86.15.132	1
C	10.31.25.128	255.255.255.240	R11	20.86.15.132	1
D	20.64.73.0	255.255.255.0	R11	20.86.15.132	1
E	10.31.25.0	255.255.255.128	R10	20.86.15.133	1
F	20.86.15.32	255.255.255.224	R10	20.86.15.133	1
G	10.31.25.152	255.255.255.252	R10	20.86.15.133	1
H	10.31.25.156	255.255.255.252	R11	20.86.15.132	1
I					
I1	151.40.3.192	255.255.255.252	R10	20.86.15.133	1
I2	151.40.3.196	255.255.255.252	R10	20.86.15.133	1
I3	151.40.3.200	255.255.255.252	R10	20.86.15.133	1
I4	151.40.3.204	255.255.255.252	R10	20.86.15.133	1
I5	151.40.3.208	255.255.255.252	R10	20.86.15.133	1
I6	151.40.3.212	255.255.255.252	R10	20.86.15.133	1
I7	151.40.3.216	255.255.255.252	R10	20.86.15.133	1
I8	151.40.3.220	255.255.255.252	R10	20.86.15.133	1
I9	151.40.3.224	255.255.255.252	R10	20.86.15.133	1
I10	151.40.3.228	255.255.255.252	R10	20.86.15.133	1
J	20.86.15.64	255.255.255.192	R10	20.86.15.133	1
K	10.31.25.144	255.255.255.248	R10	20.86.15.133	1
L	20.26.29.0	255.255.255.0	R11	20.86.15.132	1
M1	Directamente conectada				
M2	10.31.25.192	255.255.255.224	R10	20.86.15.133	1

1.5.3. Host C

Red	Dirección de Red	Máscara	Sig. Salto	Dir. Sig. Salto	Métrica
A	201.158.15.0	255.255.255.128	R14	20.86.15.34	1
B	20.86.15.0	255.255.255.224	R14	20.86.15.34	1
C	10.31.25.128	255.255.255.240	R14	20.86.15.34	1
D	20.64.73.0	255.255.255.0	R13	20.86.15.33	1
E	10.31.25.0	255.255.255.128	R13	20.86.15.33	1
F	Directamente conectada				
G	10.31.25.152	255.255.255.252	R13	20.86.15.33	1
H	10.31.25.156	255.255.255.252	R13	20.86.15.33	1
I					
I1	151.40.3.192	255.255.255.252	R14	20.86.15.34	1
I2	151.40.3.196	255.255.255.252	R14	20.86.15.34	1
I3	151.40.3.200	255.255.255.252	R14	20.86.15.34	1
I4	151.40.3.204	255.255.255.252	R14	20.86.15.34	1
I5	151.40.3.208	255.255.255.252	R14	20.86.15.34	1
I6	151.40.3.212	255.255.255.252	R14	20.86.15.34	1
I7	151.40.3.216	255.255.255.252	R14	20.86.15.34	1
I8	151.40.3.220	255.255.255.252	R14	20.86.15.34	1
I9	151.40.3.224	255.255.255.252	R14	20.86.15.34	1
I10	151.40.3.228	255.255.255.252	R14	20.86.15.34	1
J	20.86.15.64	255.255.255.192	R14	20.86.15.34	1
K	10.31.25.144	255.255.255.248	R13	20.86.15.33	1
L	20.26.29.0	255.255.255.0	R14	20.86.15.34	1
M1	20.86.15.128	255.255.255.128	R13	20.86.15.33	1
M2	10.31.25.192	255.255.255.224	R13	20.86.15.33	1

1.5.4. Telserver

Red	Dirección de Red	Máscara	Sig. Salto	Dir. Sig. Salto	Métrica
A	201.158.15.0	255.255.255.128	R6	20.26.29.2	1
B	20.86.15.0	255.255.255.224	R6	20.26.29.2	1
C	10.31.25.128	255.255.255.240	R6	20.26.29.2	1
D	20.64.73.0	255.255.255.0	R7	20.26.29.1	1
E	10.31.25.0	255.255.255.128	R10	20.86.15.133	1
F	20.86.15.32	255.255.255.224	R10	20.86.15.133	1
G	10.31.25.152	255.255.255.252	R10	20.86.15.133	1
H	10.31.25.156	255.255.255.252	R7	20.26.29.1	1
I					
I1	151.40.3.192	255.255.255.252	R6	20.26.29.2	1
I2	151.40.3.196	255.255.255.252	R6	20.26.29.2	1
I3	151.40.3.200	255.255.255.252	R6	20.26.29.2	1
I4	151.40.3.204	255.255.255.252	R6	20.26.29.2	1
I5	151.40.3.208	255.255.255.252	R6	20.26.29.2	1
I6	151.40.3.212	255.255.255.252	R6	20.26.29.2	1
I7	151.40.3.216	255.255.255.252	R6	20.26.29.2	1
I8	151.40.3.220	255.255.255.252	R6	20.26.29.2	1
I9	151.40.3.224	255.255.255.252	R6	20.26.29.2	1
I10	151.40.3.228	255.255.255.252	R6	20.26.29.2	1
J	20.86.15.64	255.255.255.192	R9	20.26.29.3	1
K	10.31.25.144	255.255.255.248	R10	20.86.15.133	1
L	Directamente conectda				
M1	Directamente conectada				
M2	10.31.25.192	255.255.255.224	R10	20.86.15.133	1

1.5.5. DNS1 - FTP server

Al igual que el caso entre Host A y el Webserver, en este caso ambos servicios se encuentran en la misma red, por lo que se utiliza la misma tabla de ruteo para ambos casos.

Red	Dirección de Red	Máscara	Sig. Salto	Dir. Sig. Salto	Métrica
A	201.158.15.0	255.255.255.128	R12	10.31.25.2	1
B	20.86.15.0	255.255.255.224	R12	10.31.25.2	1
C	10.31.25.128	255.255.255.240	R12	10.31.25.2	1
D	20.64.73.0	255.255.255.0	R12	10.31.25.2	1
E	Directamente conectada				
F	20.86.15.32	255.255.255.224	R13	10.31.25.5	1
G	10.31.25.152	255.255.255.252	R13	10.31.25.5	1
H	10.31.25.156	255.255.255.252	R12	10.31.25.2	1
I					
I1	151.40.3.192	255.255.255.252	R15	10.31.25.4	1
I2	151.40.3.196	255.255.255.252	R15	10.31.25.4	1
I3	151.40.3.200	255.255.255.252	R15	10.31.25.4	1
I4	151.40.3.204	255.255.255.252	R15	10.31.25.4	1
I5	151.40.3.208	255.255.255.252	R15	10.31.25.4	1
I6	151.40.3.212	255.255.255.252	R15	10.31.25.4	1
I7	151.40.3.216	255.255.255.252	R15	10.31.25.4	1
I8	151.40.3.220	255.255.255.252	R15	10.31.25.4	1
I9	151.40.3.224	255.255.255.252	R15	10.31.25.4	1
I10	151.40.3.228	255.255.255.252	R15	10.31.25.4	1
J	20.86.15.64	255.255.255.192	R15	10.31.25.4	1
K	10.31.25.144	255.255.255.248	R15	10.31.25.4	1
L	20.26.29.0	255.255.255.0	R15	10.31.25.4	1
M1	20.86.15.128	255.255.255.128	R13	10.31.25.5	1
M2	10.31.25.192	255.255.255.224	R13	10.31.25.5	1

1.5.6. DNS2

Dado que el DNS2 sólo está conectado al router R10, éste deberá ser su Default Gateway.

Red	Dirección de Red	Máscara	Sig. Salto	Dir. Sig. Salto	Métrica
	0.0.0.0	0.0.0.0	R10	10.31.25.193	1

1.5.7. DNS Root

Red	Dirección de Red	Máscara	Sig. Salto	Dir. Sig. Salto	Métrica
A	201.158.15.0	255.255.255.128	Virtual-D	20.64.73.5	1
B	20.86.15.0	255.255.255.224	Virtual-D	20.64.73.5	1
C	10.31.25.128	255.255.255.240	Virtual-D	20.64.73.5	1
D	Directamente conectada				
E	10.31.25.0	255.255.255.128	R8	20.64.73.4	1
F	20.86.15.32	255.255.255.224	R8	20.64.73.4	1
G	10.31.25.152	255.255.255.252	R8	20.64.73.4	1
H	10.31.25.156	255.255.255.252	R8	20.64.73.4	1
I					
I1	151.40.3.192	255.255.255.252	Virtual-D	20.64.73.5	1
I2	151.40.3.196	255.255.255.252	Virtual-D	20.64.73.5	1
I3	151.40.3.200	255.255.255.252	Virtual-D	20.64.73.5	1
I4	151.40.3.204	255.255.255.252	Virtual-D	20.64.73.5	1
I5	151.40.3.208	255.255.255.252	Virtual-D	20.64.73.5	1
I6	151.40.3.212	255.255.255.252	Virtual-D	20.64.73.5	1
I7	151.40.3.216	255.255.255.252	Virtual-D	20.64.73.5	1
I8	151.40.3.220	255.255.255.252	Virtual-D	20.64.73.5	1
I9	151.40.3.224	255.255.255.252	Virtual-D	20.64.73.5	1
I10	151.40.3.228	255.255.255.252	Virtual-D	20.64.73.5	1
J	20.86.15.64	255.255.255.192	Virtual-D	20.64.73.5	1
K	10.31.25.144	255.255.255.248	Virtual-D	20.64.73.5	1
L	20.26.29.0	255.255.255.0	R8	20.64.73.4	1
M1	20.86.15.128	255.255.255.128	R8	20.64.73.4	1
M2	10.31.25.192	255.255.255.224	R8	20.64.73.4	1

2. Frame Relay

Para el armado de la red Frame Relay se uso un dispositivo *Frame Relay* genérico con las siguientes configuraciones de DLCI.

2.1. FR

Interface In	DLCI In	Interface Out	DLCI Out
s0/0	217	Serial0/1	172
s0/0	216	Serial0/2	162
s0/0	209	Serial0/3	902
s0/0	206	Serial0/4	602
s0/1	172	Serial0/0	217
s0/1	1716	Serial0/2	1617
s0/1	179	Serial0/3	917
s0/1	176	Serial0/4	617
s0/2	162	Serial0/0	216
s0/2	708	Serial0/1	807
s0/2	169	Serial0/3	916
s0/2	166	Serial0/4	616
s0/3	902	Serial0/0	209
s0/3	917	Serial0/1	179
s0/3	916	Serial0/2	169
s0/3	906	Serial0/4	609
s0/4	602	Serial0/0	206
s0/4	617	Serial0/1	176
s0/4	616	Serial0/2	166
s0/4	609	Serial0/3	906

3. VRRP

3.1. Configuración de los Routers

R4

```
track 1 interface Ethernet0/0 ip routing
track 2 interface Ethernet0/1 ip routing

interface Ethernet0/0
 description Conexion LAN Red A
 ip address 201.158.15.3 255.255.255.128
 full-duplex
 vrrp 10 ip 201.158.15.7
 vrrp 10 timers advertise 15
 vrrp 10 timers learn
 vrrp 10 priority 110
 vrrp 10 track 1 decrement 20
 vrrp 10 track 2 decrement 20

interface Ethernet0/1
 description Conexion LAN Red D
```

```
 ip address 20.64.73.2 255.255.255.0
 full-duplex
 vrrp 11 ip 20.64.73.5
 vrrp 11 timers advertise 15
 vrrp 11 timers learn
 vrrp 11 priority 110
 vrrp 11 track 1 decrement 20
 vrrp 11 track 2 decrement 20
```

R5

```
track 1 interface Ethernet0/0 ip routing
track 2 interface Ethernet0/1 ip routing

interface Ethernet0/0
 description Conexion LAN Red A
 ip address 201.158.15.4 255.255.255.128
 full-duplex
 vrrp 10 ip 201.158.15.7
 vrrp 10 timers advertise 15
 vrrp 10 timers learn
 vrrp 10 priority 100
 vrrp 10 track 1 decrement 20
 vrrp 10 track 2 decrement 20

interface Ethernet0/1
 description Conexion LAN Red D
 ip address 20.64.73.1 255.255.255.0
 full-duplex
 vrrp 11 ip 20.64.73.5
 vrrp 11 timers advertise 15
 vrrp 11 timers learn
 vrrp 11 priority 100
 vrrp 11 track 1 decrement 20
 vrrp 11 track 2 decrement 20
```