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# **TOPOLOGÍA IMPLEMENTADA**

Diagrama

Descripción generada automáticamente

Se detallan las conexiones de cada dispositivo:

|  |  |  |
| --- | --- | --- |
| **Dispositivo** | **Interfaz** | **Descripción** |
| **SW** | Fa0/1 | Se conecta a la PC 3 (Acceso) |
| Fa0/2 | Se conecta a la PC 4 (Acceso) |
| Fa0/3 | Se conecta al MSW 1 (Troncal) |
| Fa0/4 | Se conecta al MSW 2 (Troncal) |
| **MSW 1** | Fa2/0/1 | Se conecta al MSW 2 (Troncal) |
| Fa2/0/2 | Se conecta al R2 (Enrutable) |
| Fa2/0/3 | Se conecta al SW (Troncal) |
| Fa2/0/4 | Se conecta al Servidor WEB (Enrutable) |
| **MSW 2** | Fa0/1 | Se conecta al MSW 1 (Troncal) |
| Fa0/2 | Se conecta a R1 (Enrutable) |
| Fa0/4 | Se conecta al SW (Troncal) |
| **MSW 3** | Fa0/1 | Se conecta al R2 (Enrutable) |
| Fa0/2 | Se conecta al R1 (Enrutable) |
| Fa0/3 | Se conecta a la PC 1 (Acceso) |
| Fa0/4 | Se conecta a la PC 2 (Acceso) |
| **R1** | Se0/0/0 | Se conecta al R2 |
| Fa0/0 | Se conecta al MSW 2 |
| Fa0/1 | Se conecta al MSW 3 |
| **R2** | Se0/0/0 | Se conecta a R3 (Remoto) |
| Se0/0/1 | Se conecta al ISP (Internet) |
| Se0/1/0 | Se conecta a R1 |
| Fa0/0 | Se conecta al MSW 1 |
| Fa0/1 | Se conecta al MSW 3 |
| **R3** | Se0/0/0 | Se conecta al R2 |
| Se0/0/1 | Se conecta al ISP (Internet) |
| Fa0/0 | Se conecta a la PC Remota |
| **ISP** | Se0/0/0 | Se conecta al R2 |
| Se0/0/1 | Se conecta a R3 (Remoto) |
| Lo0 | Simula Internet |

# **DIRECCIONAMIENTO**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Red** | **Departamento** | **Dirección de Red** | | **VLAN** | **Descripción** |
| **Administración** | Administración | 172.17.10.0 | / 24 | 10 | Sector 1, red de Administración |
| Legales | 172.17.11.0 | / 24 | 11 |
| RRHH | 172.17.12.0 | / 24 | 12 |
| Gerencia | 172.17.13.0 | / 24 | 13 |
| Mantenimiento | 172.17.20.0 | / 24 | 20 | Sector 2, red de Administración |
| Ingeniería | 172.17.21.0 | / 24 | 21 |
| Logística | 172.17.30.0 | / 24 | 30 | Sector 3, red de Administración |
| Portería | 172.17.31.0 | / 24 | 31 |
| CCTV | 172.17.40.0 | / 24 | 40 | Para toda la red de Administración |
| Personal Mantenimiento | 172.17.20.0 | / 24 | 20 | Hosts, red de Administración |
| **Planta** | Nativa | 172.16.1.0 | / 23 | 1 | Para toda la red de Planta |
| CCTV | 172.16.40.0 | / 23 | 40 |
| **DMZ** | DMZ | 172.18.10.0 | / 29 | N / A | Zona Desmilitarizada |
| **Redes P2P (Privadas)** | N / A | 10.254.X.0 | / 30 | N / A | Redes Punto a Punto |
| **Redes P2P (Públicas)** | ISP | 64.100.X.0 | / 30 | N / A | Salida de la Red Industrial |
| **NAT e Internet** | ISP | 209.165.200.X | / 30 | N / A | Direcciones Públicas |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Dispositivo** | **Interfaz** | **Dirección IP / Prefijo** | | **Descripción** |
| **R1** | Se0/0/0 | 10.254.1.1 | / 30 | Ruta al R2 |
| Fa0/0 | 10.254.2.1 | / 30 | Ruta al MSW 2 |
| Fa0/1 | 10.254.3.1 | / 30 | Ruta al MSW 3 |
| **R2** | Se0/0/0 | 10.254.4.1 | / 30 | Ruta al R3 (Remoto) |
| Se0/0/1 | 64.100.0.2 | / 30 | Ruta al ISP (Internet) |
| Se0/1/0 | 10.254.1.2 | / 30 | Ruta al R1 |
| Fa0/0 | 10.254.5.1 | / 30 | Ruta al MSW 1 |
| Fa0/1 | 10.254.6.1 | / 30 | Ruta al MSW 3 |
| **R3 (Remoto)** | Se0/0/0 | 10.254.4.2 | / 30 | Ruta al R2 |
| Se0/0/1 | 64.100.1.2 | / 30 | Ruta al ISP (Internet) |
| Fa0/0 | 192.168.0.1 | / 24 | Ruta a la PC Remota |
| **ISP** | Se0/0/0 | 64.100.0.1 | / 30 | Ruta al R2 |
| Se0/0/1 | 64.100.1.1 | / 30 | Ruta al R3 (Remoto) |
| Lo0 | 209.165.200.1 | / 30 | Simula Internet |
| **MSW 1** | Fa2/0/2 | 10.254.5.2 | / 30 | Ruta al R2 |
| Fa2/0/4 | 10.254.7.1 | / 30 | Ruta al Servidor WEB |
| **MSW 2** | Fa0/2 | 10.254.2.2 | / 30 | Ruta al R1 |
| **MSW 3** | Fa0/1 | 10.254.6.2 | / 30 | Ruta al R2 |
| Fa0/2 | 10.254.3.2 | / 30 | Ruta al R1 |

## **Hosts y Servidores**

Diagrama

Descripción generada automáticamente

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| --- | --- | --- | --- |
| **PC Planta** | **Dirección IP / Prefijo** | **Puerta de Enlace Predeterminada** | **Descripción** |
| **PC 1** | 172.16.1.11 /23 | 172.16.1.1 | VLAN 1 |
| **PC 2** | 172.16.40.22 /23 | 172.16.40.1 | VLAN 40 |

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| **PC Administración** | **Dirección IP / Prefijo** | **Puerta de Enlace Predeterminada** | **Descripción** |
| **PC 3** | 172.17.10.33 /24 | 172.17.10.1 | VLAN 10 |
| **PC 4** | 172.17.20.44 /24 | 172.17.20.1 | VLAN 20 |

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| **PC Sitio Remoto** | **Dirección IP / Prefijo** | **Puerta de Enlace Predeterminada** | **Descripción** |
| **PC Remota** | 192.168.0.2 /24 | 192.168.0.1 | VLAN 1 |

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| --- | --- | --- | --- |
| **Servidores** | **Dirección IP / Prefijo** | **Puerta de Enlace Predeterminada** | **Servicios** |
| **Web** | 10.254.7.2 /30  (209.165.200.228) | 10.254.7.1 | Web |

## **Switches y Routers**

Diagrama

Descripción generada automáticamente

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| --- | --- | --- | --- |
| **Dispositivo** | **Dirección IP de Administación** | **Puerta de Enlace Predeterminada** | **Escritorio Remoto** |
| **SW** | 172.17.100.11 | 172.17.100.1 | Desde PC 4 |
| **MSW 1** | 172.17.100.2 | N / A |
| **MSW 2** | 172.17.100.3 | N / A |
| **MSW 3** | 172.16.1.1 | N / A | Desde PC 2 |
| **R1** | 10.254.3.1 | N / A |
| **R2** | 10.254.5.1 | N / A | Desde PC 4 |
| **R3** | 192.168.0.1 | N / A | Desde PC Remota |

# **CONFIGURACIONES DE LOS DISPOSITIVOS**

## **Red de Planta**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Dispositivo | | Descripción | | | Dirección IP de Administración | | |
| Planta-MSW3 | | Switch Capa 3 de Planta | | | 172.16.1.1 | | |
| **Puerto** | **Descripción** | | **Acceso** | **Troncal** | **VLAN** | **Nativo** | **Habilitado** |
| Fa0/3 | Acceso a PC 1 | | Sí | - | 1 | - | Sí |
| Fa0/4 | Acceso a PC 2 | | Sí | - | 40 | - | Sí |
| Fa0/5-8 | Sin uso | | Sí | - | 1000 | - | Apagado |
| Gi0/1 | Sin uso | | Sí | - | 1000 | - | Apagado |
| **Interfaces** | **Descripción** | | **Enrutable** | | **Dirección IP / Prefijo** | | |
| Fa0/1 | Ruta a R2 | | Sí – OSPFv2 | | 10.254.6.2 / 30 | | |
| Fa0/2 | Ruta a R1 | | Sí – OSPFv2 | | 10.254.3.2 / 30 | | |
| VLAN 1 | Gateway para la VLAN 1 | | Sí – OSPFv2 | | 172.16.1.1 / 23 | | |
| VLAN 40 | Gateway para la VLAN 40 | | Sí – OSPFv2 | | 172.16.40.1 / 23 | | |

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| **Configuraciones Generales:** |
| enable  configure terminal  no ip domain lookup  hostname Planta-MSW3  banner motd #WARNING: Unauthorized Access is Prohibited!#  line console 0  password admin  login  exit  enable secret admin  service password-encryption  spanning-tree mode rapid-pvst |

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| **Administración Remota y Acceso Seguro Remoto:** |
| ip domain-name MSW3.com  username admin secret admin  crypto key generate rsa  1024  ip ssh version 2  ip access-list standard ADMIN-REMOTA  permit 172.16.40.22  exit  line vty 0 4  login local  transport input ssh  access-class ADMIN-REMOTA in  exit |

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| **VLANs:** |
| vlan 40  name CCTV\_VLAN  vlan 1000  name Sin\_Uso  interface fa0/3  description Conectado a PC1  switchport mode access  switchport access vlan 1  no shutdown  interface fa0/4  description Conectado a PC2 (CCTV)  switchport mode access  switchport access vlan 40  no shutdown  exit |

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| **Enrutamiento:** |
| ip routing  interface fa0/1  description Ruta hacia R2  no switchport  ip address 10.254.6.2 255.255.255.252  no shutdown  interface fa0/2  description Ruta hacia R1  no switchport  ip address 10.254.3.2 255.255.255.252  no shutdown  interface vlan 1  description Gateway para la VLAN 1  ip address 172.16.1.1 255.255.254.0  no shutdown  interface vlan 40  description Gateway para la VLAN 40  ip address 172.16.40.1 255.255.254.0  no shutdown  exit |

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| **OSPFv2:** |
| router ospf 10  network 10.254.6.2 0.0.0.0 area 0  network 10.254.3.2 0.0.0.0 area 0  network 172.16.1.0 0.0.1.255 area 0  network 172.16.40.0 0.0.1.255 area 0  exit |

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| --- |
| **Seguridad:** |
| interface range fa0/5-8  description Puerto sin Utilizar  switchport mode access  switchport access vlan 1000  shutdown  interface range fa0/3-4  spanning-tree portfast  spanning-tree bpduguard enable  exit |

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| **NTP:** |
| ntp server 10.254.6.1  end  exit |

## **Red de Administración**

#### SW:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Dispositivo | | Descripción | | | Dirección IP de Administración | | |
| Administracion-SW | | Switch de Red de Administración | | | 172.17.100.11 | | |
| **Puerto** | **Descripción** | | **Acceso** | **Troncal** | **VLAN** | **Nativo** | **Habilitado** |
| Fa0/1 | Acceso a PC 3 y VoIP | | Sí | - | 10 y 50 | - | Sí |
| Fa0/2 | Acceso a PC 4 y VoIP | | Sí | - | 20 y 50 | - | Sí |
| Fa0/3 | Troncal a MSW 1 | | - | Sí | - | 1 | Sí |
| Fa0/4 | Troncal a MSW 2 | | - | Sí | - | 1 | Sí |
| Fa0/5-24 | Sin uso | | Sí | - | 1000 | - | Apagado |
| Gi0/1-2 | Sin uso | | Sí | - | 1000 | - | Apagado |

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| **Configuraciones Generales:** |
| enable  configure terminal  no ip domain lookup  hostname Administracion-SW  banner motd #WARNING: Unauthorized Access is Prohibited!#  line console 0  password admin  login  exit  enable secret admin  service password-encryption  spanning-tree mode rapid-pvst |

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| **Administración Remota y Acceso Seguro Remoto:** |
| interface vlan 100  description Interfaz de Administración Remota  ip address 172.17.100.11 255.255.255.0  no shutdown  exit  ip default-gateway 172.17.100.1  ip domain-name SW.com  username admin secret admin  crypto key generate rsa  1024  ip ssh version 2  ip access-list standard ADMIN-REMOTA  permit 172.17.20.44  exit  line vty 0 4  login local  transport input ssh  access-class ADMIN-REMOTA in  exit |

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| **VLANs:** |
| vlan 10  name Administracion  vlan 11  name Legales  vlan 12  name RRHH  vlan 13  name Gerencia  vlan 20  name Mantenimiento  vlan 21  name Ingenieria  vlan 30  name Logistica  vlan 31  name Porteria  vlan 40  name CCTV  vlan 50  name Voz  vlan 100  name Administracion\_Remota  vlan 1000  name Sin\_Uso  interface fa0/1  description Conectado a PC3 (Mantenimiento)  switchport mode access  switchport access vlan 10  mls qos trust cos  switchport voice vlan 50  no shutdown  interface fa0/2  description Conectado a PC4 (Mantenimiento)  switchport mode access  switchport access vlan 20  mls qos trust cos  switchport voice vlan 50  no shutdown |

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| **Troncales:** |
| interface range fa0/3-4  description Puerto Troncal  switchport mode trunk  switchport trunk native vlan 1  switchport trunk allowed vlan 1,10,11,12,13,20,21,30,31,40,50,100  no shutdown  exit |

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| --- |
| **Seguridad:** |
| interface range fa0/5-24, gi0/1-2  description Puerto sin Utilizar  switchport mode access  switchport access vlan 1000  shutdown  interface range fa0/1-2  spanning-tree portfast  spanning-tree bpduguard enable  exit |

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| **NTP:** |
| ntp server 10.254.6.1  end  exit |

#### MSW 1:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Dispositivo | | Descripción | | | Dirección IP de Administración | | |
| Administracion-MSW1 | | Switch Capa 3 de Admin. (Activo) | | | 172.17.100.2 | | |
| **Puerto** | **Descripción** | | **Acceso** | **Troncal** | **VLAN** | **Nativo** | **Habilitado** |
| Fa2/0/1 | Troncal a MSW 2 | | - | Sí | - | 1 | Sí |
| Fa2/0/3 | Troncal a SW | | - | Sí | - | 1 | Sí |
| Fa2/0/5-24 | Sin uso | | Sí | - | 1000 | - | Apagado |
| Gi2/0/1-2 | Sin uso | | Sí | - | 1000 | - | Apagado |
| **Interfaces** | **Descripción** | | **Enrutable** | | **Dirección IP / Prefijo** | | |
| Fa2/0/2 | Ruta a R2 | | Sí – OSPFv2 | | 10.254.5.2 / 30 | | |
| Fa2/0/4 | Ruta al Servidor WEB | | Sí – OSPFv2 | | 10.254.7.1 / 30 | | |
| VLAN 10 | Gateway para la VLAN 10 | | Sí – OSPFv2 | | 172.17.10.2 / 24 | | |
| VLAN 11 | Gateway para la VLAN 11 | | Sí – OSPFv2 | | 172.17.11.2 / 24 | | |
| VLAN 12 | Gateway para la VLAN 12 | | Sí – OSPFv2 | | 172.17.12.2 / 24 | | |
| VLAN 13 | Gateway para la VLAN 13 | | Sí – OSPFv2 | | 172.17.13.2 / 24 | | |
| VLAN 20 | Gateway para la VLAN 20 | | Sí – OSPFv2 | | 172.17.20.2 / 24 | | |
| VLAN 21 | Gateway para la VLAN 21 | | Sí – OSPFv2 | | 172.17.21.2 / 24 | | |
| VLAN 30 | Gateway para la VLAN 30 | | Sí – OSPFv2 | | 172.17.30.2 / 24 | | |
| VLAN 31 | Gateway para la VLAN 31 | | Sí – OSPFv2 | | 172.17.31.2 / 24 | | |
| VLAN 40 | Gateway para la VLAN 40 | | Sí – OSPFv2 | | 172.17.40.2 / 24 | | |
| VLAN 50 | Gateway para la VLAN 50 | | Sí – OSPFv2 | | 172.17.50.2 / 24 | | |
| VLAN 100 | Gateway para la VLAN 100 | | Sí – OSPFv2 | | 172.17.100.2 / 24 | | |

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| **Configuraciones Generales:** |
| enable  configure terminal  no ip domain lookup  hostname Administracion-MSW1  banner motd #WARNING: Unauthorized Access is Prohibited!#  line console 0  password admin  login  exit  enable secret admin  service password-encryption  spanning-tree mode rapid-pvst |

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| **Seguridad:** |
| interface range fa2/0/5-24, gi2/0/1-2  description Puerto sin Utilizar  switchport mode access  switchport access vlan 1000  shutdown  exit |

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| **Administración Remota y Acceso Seguro Remoto:** |
| ip domain-name MSW1.com  username admin secret admin  crypto key generate rsa  1024  ip ssh version 2  ip access-list standard ADMIN-REMOTA  permit 172.17.20.44  exit  line vty 0 4  login local  transport input ssh  access-class ADMIN-REMOTA in  exit |

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| **VLANs:** |
| vlan 10  name Administración  vlan 11  name Legales  vlan 12  name RRHH  vlan 13  name Gerencia  vlan 20  name Mantenimiento  vlan 21  name Ingenieria  vlan 30  name Logistica  vlan 31  name Porteria  vlan 40  name CCTV  vlan 50  name Voz  vlan 100  name Administracion\_Remota  vlan 1000  name Sin\_Uso |

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| **Troncales:** |
| interface range fa2/0/1, fa2/0/3  description Puerto Troncal  switchport mode dynamic desirable  switchport trunk native vlan 1  switchport trunk allowed vlan 1,10,11,12,13,20,21,30,31,40,50,100  no shutdown |

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| **HSRP:** |
| ip routing  interface vlan 10  description Gateway para la VLAN 10  ip address 172.17.10.2 255.255.255.0  standby 10 ip 172.17.10.1  standby 10 priority 110  standby 10 preempt  no shutdown  interface vlan 11  description Gateway para la VLAN 11  ip address 172.17.11.2 255.255.255.0  standby 11 ip 172.17.11.1  standby 11 priority 110  standby 11 preempt  no shutdown  interface vlan 12  description Gateway para la VLAN 12  ip address 172.17.12.2 255.255.255.  standby 12 ip 172.17.12.1  standby 12 priority 110  standby 12 preempt  no shutdown  interface vlan 13  description Gateway para la VLAN 13  ip address 172.17.13.2 255.255.255.0  standby 13 ip 172.17.13.1  standby 13 priority 110  standby 13 preempt  no shutdown  interface vlan 20  description Gateway para la VLAN 20  ip address 172.17.20.2 255.255.255.0  standby 20 ip 172.17.20.1  standby 20 priority 110  standby 20 preempt  no shutdown  interface vlan 21  description Gateway para la VLAN 21  ip address 172.17.21.2 255.255.255.0  standby 21 ip 172.17.21.1  standby 21 priority 110  standby 21 preempt  no shutdown  interface vlan 30  description Gateway para la VLAN 30  ip address 172.17.30.2 255.255.255.0  standby 30 ip 172.17.30.1  standby 30 priority 110  standby 30 preempt  no shutdown  interface vlan 31  description Gateway para la VLAN 31  ip address 172.17.31.2 255.255.255.0  standby 31 ip 172.17.31.1  standby 31 priority 110  standby 31 preempt  no shutdown  interface vlan 40  description Gateway para la VLAN 40  ip address 172.17.40.2 255.255.255.0  standby 40 ip 172.17.40.1  standby 40 priority 110  standby 40 preempt  no shutdown  interface vlan 50  description Gateway para la VLAN 50  ip address 172.17.50.2 255.255.255.0  standby 50 ip 172.17.50.1  standby 50 priority 110  standby 50 preempt  no shutdown  interface vlan 100  description Gateway para la VLAN 100  ip address 172.17.100.2 255.255.255.0  standby 100 ip 172.17.100.1  standby 100 priority 110  standby 100 preempt  no shutdown  exit |

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| **Enrutamiento:** |
| interface fa2/0/2  description Ruta hacia R2  no switchport  ip address 10.254.5.2 255.255.255.252  no shutdown  interface fa2/0/4  description Ruta hacia el Servidor WEB  no switchport  ip address 10.254.7.1 255.255.255.252  no shutdown  exit |

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| **OSPFv2:** |
| router ospf 10  network 10.254.5.2 0.0.0.0 area 0  network 10.254.7.1 0.0.0.0 area 0  network 172.17.10.0 0.0.0.255 area 0  network 172.17.11.0 0.0.0.255 area 0  network 172.17.12.0 0.0.0.255 area 0  network 172.17.13.0 0.0.0.255 area 0  network 172.17.20.0 0.0.0.255 area 0  network 172.17.21.0 0.0.0.255 area 0  network 172.17.30.0 0.0.0.255 area 0  network 172.17.31.0 0.0.0.255 area 0  network 172.17.40.0 0.0.0.255 area 0  network 172.17.50.0 0.0.0.255 area 0  network 172.17.100.0 0.0.0.255 area 0  passive-interface fa2/0/4  exit |

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| **NTP:** |
| ntp server 10.254.6.1  end  exit |

#### MSW 2:

|  |  |  |  |  |  |  |  |
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| Dispositivo | | Descripción | | | Dirección IP de Administración | | |
| Administracion-MSW2 | | Switch Capa 3 de Admin. (Pasivo) | | | 172.17.100.3 | | |
| **Puerto** | **Descripción** | | **Acceso** | **Troncal** | **VLAN** | **Nativo** | **Habilitado** |
| Fa0/1 | Troncal a MSW 1 | | - | Sí | - | 1 | Sí |
| Fa0/4 | Troncal a SW | | - | Sí | - | 1 | Sí |
| Fa0/3 | Sin uso | | Sí | - | 1000 | - | Apagado |
| Fa0/5-24 | Sin uso | | Sí | - | 1000 | - | Apagado |
| Gi0/1-2 | Sin uso | | Sí | - | 1000 | - | Apagado |
| **Interfaces** | **Descripción** | | **Enrutable** | | **Dirección IP / Prefijo** | | |
| Fa0/2 | Ruta a R1 | | Sí – OSPFv2 | | 10.254.2.2 / 30 | | |
| VLAN 10 | Gateway para la VLAN 10 | | Sí – OSPFv2 | | 172.17.10.3 / 24 | | |
| VLAN 11 | Gateway para la VLAN 11 | | Sí – OSPFv2 | | 172.17.11.3 / 24 | | |
| VLAN 12 | Gateway para la VLAN 12 | | Sí – OSPFv2 | | 172.17.12.3 / 24 | | |
| VLAN 13 | Gateway para la VLAN 13 | | Sí – OSPFv2 | | 172.17.13.3 / 24 | | |
| VLAN 20 | Gateway para la VLAN 20 | | Sí – OSPFv2 | | 172.17.20.3 / 24 | | |
| VLAN 21 | Gateway para la VLAN 21 | | Sí – OSPFv2 | | 172.17.21.3 / 24 | | |
| VLAN 30 | Gateway para la VLAN 30 | | Sí – OSPFv2 | | 172.17.30.3 / 24 | | |
| VLAN 31 | Gateway para la VLAN 31 | | Sí – OSPFv2 | | 172.17.31.3 / 24 | | |
| VLAN 40 | Gateway para la VLAN 40 | | Sí – OSPFv2 | | 172.17.40.3 / 24 | | |
| VLAN 50 | Gateway para la VLAN 50 | | Sí – OSPFv2 | | 172.17.50.3 / 24 | | |
| VLAN 100 | Gateway para la VLAN 100 | | Sí – OSPFv2 | | 172.17.100.3 / 24 | | |

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| **Configuraciones Generales:** |
| enable  configure terminal  no ip domain lookup  hostname Administracion-MSW2  banner motd #WARNING: Unauthorized Access is Prohibited!#  line console 0  password admin  login  exit  enable secret admin  service password-encryption  spanning-tree mode rapid-pvst |

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| **Seguridad:** |
| interface range fa0/3, fa0/5-24, gi0/1-2  description Puerto sin Utilizar  switchport mode access  switchport access vlan 1000  shutdown  exit |

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| **Administración Remota y Acceso Seguro Remoto:** |
| ip domain-name MSW2.com  username admin secret admin  crypto key generate rsa  1024  ip ssh version 2  ip access-list standard ADMIN-REMOTA  permit 172.17.20.44  exit  line vty 0 4  login local  transport input ssh  access-class ADMIN-REMOTA in  exit |

|  |
| --- |
| **VLANs:** |
| vlan 10  name Administración  vlan 11  name Legales  vlan 12  name RRHH  vlan 13  name Gerencia  vlan 20  name Mantenimiento  vlan 21  name Ingenieria  vlan 30  name Logistica  vlan 31  name Porteria  vlan 40  name CCTV  vlan 50  name Voz  vlan 100  name Administracion\_Remota  vlan 1000  name Sin\_Uso  exit |

|  |
| --- |
| **Troncales:** |
| int range fa0/1, fa0/4  description Puerto Troncal  switchport mode dynamic desirable  switchport trunk native vlan 1  switchport trunk allowed vlan 1,10,11,12,13,20,21,30,31,40,50,100  no shutdown  exit |

|  |
| --- |
| **HSRP:** |
| ip routing  interface vlan 10  description Gateway para la VLAN 10  ip add 172.17.10.3 255.255.255.0  standby 10 ip 172.17.10.1  no shutdown  interface vlan 11  description Gateway para la VLAN 11  ip add 172.17.11.3 255.255.255.0  standby 11 ip 172.17.11.1  no shutdown  interface vlan 12  description Gateway para la VLAN 12  ip add 172.17.12.3 255.255.255.0  standby 12 ip 172.17.12.1  no shutdown  interface vlan 13  description Gateway para la VLAN 13  ip add 172.17.13.3 255.255.255.0  standby 13 ip 172.17.13.1  no shutdown  interface vlan 20  description Gateway para la VLAN 20  ip add 172.17.20.3 255.255.255.0  standby 20 ip 172.17.20.1  no shutdown  interface vlan 21  description Gateway para la VLAN 21  ip add 172.17.21.3 255.255.255.0  standby 21 ip 172.17.21.1  no shutdown  interface vlan 30  description Gateway para la VLAN 30  ip add 172.17.30.3 255.255.255.0  standby 30 ip 172.17.30.1  no shutdown  interface vlan 31  description Gateway para la VLAN 31  ip add 172.17.31.3 255.255.255.0  standby 31 ip 172.17.31.1  no shutdown  interface vlan 40  description Gateway para la VLAN 40  ip add 172.17.40.3 255.255.255.0  standby 40 ip 172.17.40.1  no shutdown  interface vlan 50  description Gateway para la VLAN 50  ip add 172.17.50.3 255.255.255.0  standby 50 ip 172.17.50.1  no shutdown  int vlan 100  description Gateway para la VLAN 100  ip add 172.17.100.3 255.255.255.0  standby 100 ip 172.17.100.1  no shutdown  exit |

|  |
| --- |
| **Enrutamiento:** |
| interface fa0/2  description Ruta hacia R1  no switchport  ip address 10.254.2.2 255.255.255.252  no shutdown  exit |

|  |
| --- |
| **OSPFv2:** |
| router ospf 10  network 10.254.2.2 0.0.0.0 area 0  network 172.17.10.0 0.0.0.255 area 0  network 172.17.11.0 0.0.0.255 area 0  network 172.17.12.0 0.0.0.255 area 0  network 172.17.13.0 0.0.0.255 area 0  network 172.17.20.0 0.0.0.255 area 0  network 172.17.21.0 0.0.0.255 area 0  network 172.17.30.0 0.0.0.255 area 0  network 172.17.31.0 0.0.0.255 area 0  network 172.17.40.0 0.0.0.255 area 0  network 172.17.50.0 0.0.0.255 area 0  network 172.17.100.0 0.0.0.255 area 0  exit |

|  |
| --- |
| **NTP:** |
| ntp server 10.254.6.1  end  exit |

## **Routers**

#### R1:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Dispositivo | | Descripción | | Dirección IP de Administración | |
| R1 | | Router de salida para la Red de Planta | | 10.254.3.1 | |
| **Interfaces** | **Descripción** | | **Dirección IP / Prefijo** | | **Enrutamiento** |
| Se0/0/0 | Ruta a R2 | | 10.254.1.1 / 30 | | OSPFv2 |
| Fa0/0 | Ruta a MSW 2 | | 10.254.2.1 / 30 | | OSPFv2 |
| Fa0/1 | Ruta a MSW 3 | | 10.254.3.1 / 30 | | OSPFv2 |

|  |
| --- |
| **Configuraciones Generales:** |
| enable  configure terminal  no ip domain lookup  hostname R1  banner motd #WARNING: Unauthorized Access is Prohibited!#  line console 0  password admin  login  exit  enable secret admin  service password-encryption |

|  |
| --- |
| **Administración Remota y Acceso Seguro Remoto:** |
| ip domain-name R1.com  username admin secret admin  crypto key generate rsa  1024  ip ssh version 2  ip access-list standard ADMIN-REMOTA  permit 172.16.40.22  exit  line vty 0 4  login local  transport input ssh  access-class ADMIN-REMOTA in  exit |

|  |
| --- |
| **Interfaces:** |
| interface se0/0/0  description Ruta a R2  ip address 10.254.1.1 255.255.255.252  no shutdown  interface fa0/0  description Ruta a MSW 2  ip address 10.254.2.1 255.255.255.252  no shutdown  interface fa0/1  description Ruta a MSW 3  ip address 10.254.3.1 255.255.255.252  no shutdown  exit |

|  |
| --- |
| **OSPFv2:** |
| router ospf 10  network 10.254.1.1 0.0.0.0 area 0  network 10.254.2.1 0.0.0.0 area 0  network 10.254.3.1 0.0.0.0 area 0  exit  interface range gi0/0-2, se0/3/0  ip ospf network point-to-point  exit |

|  |
| --- |
| **NTP:** |
| ntp server 10.254.6.1  end  exit |

#### R2:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Dispositivo | | Descripción | | Dirección IP de Administración | |
| R2 | | Router de salida para la Red de Administración | | 10.254.5.1 | |
| **Interfaces** | **Descripción** | | **Dirección IP / Prefijo** | | **Enrutamiento** |
| Se0/0/0 | Ruta a R3 (Remoto) | | 10.254.4.1 / 30 | | OSPFv2 |
| Se0/0/1 | Ruta al ISP (Internet) | | 64.100.0.2 / 30 | | Ruta Predeterminada |
| Se0/1/0 | Ruta a R1 | | 10.254.1.2 / 30 | | OSPFv2 |
| Fa0/0 | Ruta a MSW 1 | | 10.254.5.1 / 30 | | OSPFv2 |
| Fa0/1 | Ruta a MSW 3 | | 10.254.6.1 / 30 | | OSPFv2 |

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| --- |
| **Configuraciones Generales:** |
| enable  configure terminal  no ip domain lookup  hostname R2  banner motd #WARNING: Unauthorized Access is Prohibited!#  line console 0  password admin  login  exit  enable secret admin  service password-encryption |

|  |
| --- |
| **Administración Remota y Acceso Seguro Remoto:** |
| ip domain-name R2.com  username admin secret admin  crypto key generate rsa  1024  ip ssh version 2  ip access-list standard ADMIN-REMOTA  permit 172.17.20.44  exit  line vty 0 4  login local  transport input ssh  access-class ADMIN-REMOTA in  exit |

|  |
| --- |
| **Interfaces:** |
| interface se0/0/0  description Ruta a R3 (Remoto)  ip address 10.254.4.1 255.255.255.252  no shutdown  interface se0/0/1  description Ruta al ISP (Internet)  ip address 64.100.0.2 255.255.255.252  no shutdown  interface se0/1/0  description Ruta a R1  ip address 10.254.1.2 255.255.255.252  no shutdown  interface fa0/0  description Ruta a MSW 1  ip address 10.254.5.1 255.255.255.252  no shutdown  interface fa0/1  description Ruta a MSW 3  ip address 10.254.6.1 255.255.255.252  no shutdown  exit |

|  |
| --- |
| **Rutas Estática Predeterminada:** |
| ip route 0.0.0.0 0.0.0.0 s0/0/1  router ospf 10  default-information originate  exit |

|  |
| --- |
| **OSPFv2:** |
| router ospf 10  router-id 1.1.1.1  network 10.0.0.0 0.0.0.3 area 0  network 10.254.4.1 0.0.0.0 area 0  network 10.254.1.2 0.0.0.0 area 0  network 10.254.5.1 0.0.0.0 area 0  network 10.254.6.1 0.0.0.0 area 0  network 64.100.0.2 0.0.0.0 area 0  exit  interface se0/0/0  ip ospf network pint-to-point  ip ospf cost 1  ip ospf priority 1  interface se0/0/1  ip ospf cost 100  interface range gi0/0-2, se0/2/0, se0/3/0-1  ip ospf network point-to-point  exit |

|  |
| --- |
| **NAT:** |
| ip nat pool NAT-POOL 209.165.200.233 209.165.200.234 netmask 255.255.255.252  ip nat inside source list 101 pool NAT-POOL overload  ip nat inside source static 10.254.7.2 209.165.200.228  access-list 101 permit tcp 172.0.0.0 0.255.255.255 any established  access-list 101 permit ip 172.0.0.0 0.255.255.255 any  access-list 101 permit tcp 10.254.0.0 0.0.255.255 any established  access-list 101 permit ip 10.254.0.0 0.0.255.255 any  interface range fa0/0-1, se0/1/0  ip nat inside  interface s0/0/1  ip nat outside  exit |

|  |
| --- |
| **IPSec:** |
| crypto isakmp policy 10  encr aes 256  authentication pre-share  group 5  lifetime 3600  crypto isakmp key admin address 64.100.1.2  crypto ipsec transform-set GRE-VPN esp-aes 256 esp-sha-hmac  crypto map GRE-MAP 10 ipsec-isakmp  set peer 64.100.1.2  set transform-set GRE-VPN  match address GRE-VPN-ACL  ip access-list extended GRE-VPN-ACL  permit gre host 64.100.0.2 host 64.100.1.2  interface se0/0/1  crypto map GRE-MAP  exit |

|  |
| --- |
| **GRE:** |
| interface tunnel 1  ip address 10.0.0.1 255.255.255.252  tunnel source se0/0/1  tunnel destination 64.100.1.2  exit |

|  |
| --- |
| **NTP:** |
| ntp master  end  exit |

#### R3:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Dispositivo | | Descripción | | Dirección IP de Administración | |
| R3 | | Router de Sitio Remoto | | 192.168.0.1 | |
| **Interfaces** | **Descripción** | | **Dirección IP / Prefijo** | | **Enrutamiento** |
| Se0/0/0 | Ruta a R2 | | 10.254.4.2 / 30 | | OSPFv2 |
| Se0/0/1 | Ruta al ISP (Internet) | | 64.100.1.2 / 30 | | Ruta Predeterminada |
| Fa0/0 | Ruta a la PC Remota | | 192.168.0.1 / 24 | | OSPFv2 |

|  |
| --- |
| **Configuraciones Generales:** |
| enable  configure terminal  no ip domain lookup  hostname R3  banner motd #WARNING: Unauthorized Access is Prohibited!#  line console 0  password admin  login  exit  enable secret admin  service password-encryption |

|  |
| --- |
| **Administración Remota y Acceso Seguro Remoto:** |
| ip domain-name R3.com  username admin secret admin  crypto key generate rsa  1024  ip ssh version 2  ip access-list standard ADMIN-REMOTA  permit 192.168.0.2  exit  line vty 0 4  login local  transport input ssh  access-class ADMIN-REMOTA in  exit |

|  |
| --- |
| **Interfaces:** |
| interface se0/0/0  description Ruta a R2  ip address 10.254.4.2 255.255.255.252  no shutdown  interface se0/0/1  description Ruta al ISP (Internet)  ip address 64.100.1.2 255.255.255.252  no shutdown  interface fa0/0  description Ruta a PC Remota  ip address 192.168.0.1 255.255.255.0  no shutdown  exit |

|  |
| --- |
| **Rutas Estáticas:** |
| ip route 0.0.0.0 0.0.0.0 s0/0/1 |

|  |
| --- |
| **OSPFv2:** |
| router ospf 10  network 10.254.4.2 0.0.0.0 area 0  network 192.168.0.1 0.0.0.0 area 0  network 64.100.1.2 0.0.0.0 area 0  passive-interface fa0/0  exit  interface se0/0/0  ip ospf cost 1  interface se0/0/1  ip ospf cost 100  exit |

|  |
| --- |
| **NAT:** |
| ip nat pool NAT-POOL 209.165.200.236 209.165.200.237 netmask 255.255.255.252  ip nat inside source list 101 pool NAT-POOL overload  access-list 101 permit ip 192.168.0.0 0.0.255.255 any  interface range fa0/0  ip nat inside  interface s0/0/1  ip nat outside  exit |

|  |
| --- |
| **IPSec:** |
| crypto isakmp policy 10  encr aes 256  authentication pre-share  group 5  lifetime 3600  crypto isakmp key admin address 64.100.0.2  crypto ipsec transform-set GRE-VPN esp-aes 256 esp-sha-hmac  crypto map GRE-MAP 10 ipsec-isakmp  set peer 64.100.0.2  set transform-set GRE-VPN  match address GRE-VPN-ACL  ip access-list extended GRE-VPN-ACL  permit gre host 64.100.1.2 host 64.100.0.2  interface se0/0/1  crypto map GRE-MAP |

|  |
| --- |
| **GRE:** |
| interface tunnel 1  ip address 10.0.0.2 255.255.255.252  tunnel source se0/0/1  tunnel destination 64.100.0.2  exit |

#### ISP:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Dispositivo | | Descripción | | Dirección IP de Administración | |
| ISP | | Proveedor de Servicios | | - | |
| **Interfaces** | **Descripción** | | **Dirección IP / Prefijo** | | **Enrutamiento** |
| Se0/0/0 | Ruta al R2 | | 64.100.0.1 / 30 | | OSPFv2 |
| Se0/0/1 | Ruta al R3 (Remoto) | | 64.100.1.1 / 30 | | Ruta Predeterminada |
| Lo0 | Simula Internet | | 209.165.200.226 / 27 | | OSPFv2 |

|  |
| --- |
| **Configuraciones Generales:** |
| enable  configure terminal  no ip domain lookup  hostname ISP  banner motd #WARNING: Unauthorized Access is Prohibited!#  line console 0  password admin  login  exit  enable secret admin  service password-encryption |

|  |
| --- |
| **Interfaces:** |
| interface se0/0/0  description Ruta a R2  ip address 64.100.0.1 255.255.255.252  no shutdown  interface se0/0/1  description Ruta al R3 (Remoto)  ip address 64.100.1.1 255.255.255.252  no shutdown  interface lo0  description Simula Internet  ip address 209.165.200.1 255.255.255.252  no shutdown  exit |

|  |
| --- |
| **Rutas Estáticas:** |
| ip route 0.0.0.0 0.0.0.0 lo0  ip route 64.100.1.0 255.255.255.252 se0/0/1  ip route 64.100.0.0 255.255.255.252 se0/0/0  ip route 209.165.200.236 255.255.255.252 se0/0/1  ip route 209.165.200.232 255.255.255.252 se0/0/0  ip route 209.165.200.228 255.255.255.255 se0/0/0  exit  end |