Gallagher Command Centre

Internet Protocol Version 6 Support

Technical Document

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1 Background

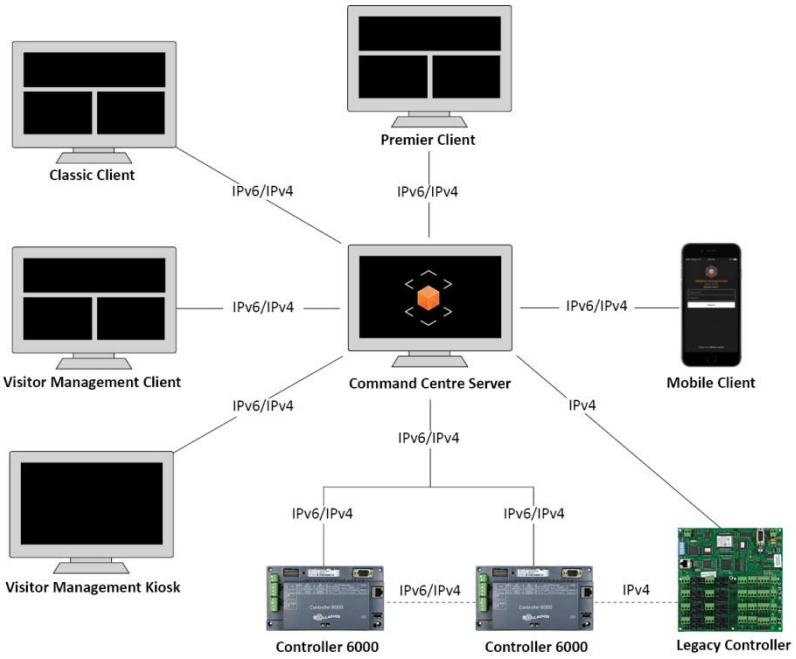
Internet Protocol version 4 (IPv4) is the current dominant Internet Protocol version for networking. In December 1998, the Internet Engineering Task Force (IETF) designated **Internet Protocol version 6** (IPv6) as the successor to IPv4 by the publication of the Standards Track specification, RFC 2460.

IPv6 has a much larger address space than IPv4. This results from the use of a 128-bit address, whereas IPv4 uses only 32 bits. The new address space thus supports 2^{128} (about 3.4×10^{38}) addresses. This expansion provides flexibility in allocating addresses and routing traffic and eliminates the primary need for network address translation (NAT). A typical example of an IPv6 address is: `2001:0db8:85a3:0000:0000:8a2e:0370:7334`, where the hexadecimal digits are case-insensitive.

IPv6 also implements some new features that simplify the aspects of address assignment (stateless address auto-configuration) and network renumbering (prefix and router announcements) when changing Internet connectivity providers. The IPv6 subnet size has been standardized by fixing the size of the host identifier portion of an address to 64 bits to facilitate an automatic mechanism for forming the host identifier from Link Layer media addressing information.

The Command Centre system provides physical access control, intruder alarms and perimeter security functionality. It is deployed as a service on a Windows server and has a number of connected controllers running Windows CE.

The following diagram shows the communication between components of the Command Centre system using IPv6/IPv4.



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2 Network Security

Command Centre the Command Centre Services will start responding on the IPv6 addresses of the host machines.

The Controller 6000 will respond to the IPv6 traffic only if configured to do so.

The organization should update firewall rules for IPv6 as per its security policies to avoid undesired connections being made to Command Centre Services or Controllers.

3 Configuring Command Centre for IPv6 communications

Command Centre uses dual-stack sockets for IPv4/IPv6 connectivity and does not require any additional configuration.

The user may retain the existing IPv4 address of the Command Centre Services or update to the IPv6 address.

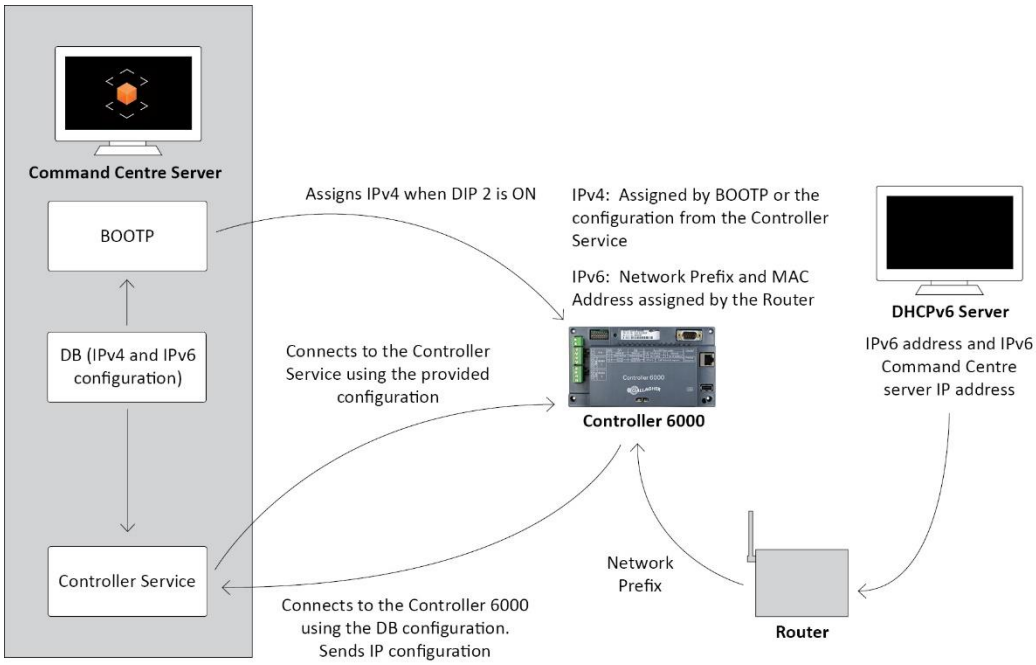
The user may wish to assign IPv6 addresses belonging to all subnets where Controllers 6000s are deployed to the Command Centre server to streamline controller configuration. The Controller 6000 properties page in the Command Centre Configuration Client contains a pre-populated network prefix combo field containing all subnet prefixes available at the Command Centre server.

The Controller 6000 properties page also contain an **Address** field which can be used to manually set an IPv6 address for the Controller. Alternatively **Enable DHCPv6** to set an address, refer to the Controller 6000 Installation Note (3E2028) for further details.



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4 Configuring Controller 6000 for IPv6 communications



The Controller 6000 accepts manual configuration of its address, auto configuration via router advertisements, or assignment via a DHCPv6 server.

The Controller 6000 will only accept IPv6 auto configuration if it is either already configured for IPv6 communication or the controller was booted with DIP switch 2 ON.

The Controller 6000 uses the default interface identifier provided by Windows CE that corresponds to the MAC address of the device.

The Command Centre Configuration Client Controller 6000 configuration page pre-populates the interface identifier of the controller based on the entered MAC address and offers a choice of the network prefixes delegated to the host machine of the Command Centre Service.

As opposed to IPv4 configuration, changing the IPv6 address of the Controller 6000 in Command Centre does not result in reconfiguration of the Controller 6000 network interface.

The network router is the only source of the IPv6 network configuration for controllers. Please refer to your router documentation for a required configuration procedure.

5 Mixed IPv4/IPv6 Controller Sites

Command Centre allows deployment of mixed IPv4/IPv6 sites. A Controller 6000 that need to communicate with legacy Controllers or IPv4 external systems must be assigned IPv4 addresses as per existing configuration procedures.

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