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## DATA LINK CONTROL<sup>1</sup>

DLC (data link control) is the service provided by the data link layer of function defined in the Open Systems Interconnection (OSI) model for network communication. The Data Link layer is responsible for providing reliable data transfer across one physical link (or telecommunications path) within the network. Some of its primary functions include defining frames, performing error detection or ECC on those frames, and performing flow control (to prevent a fast sender from overwhelming a slow receiver).

Many point-to-point protocols exist at the Data Link layer including High-level Data Link Control (HDLC), Synchronous Data Link Control (SDLC), Link Access Procedure Balanced (LAPB), and Advanced Data Communications Control Procedure (ADCCP). All of these protocols are very similar in nature and are found in older networks (such as X.25 networks). In the Internet, one of two point-to-point protocols are used at this layer: Serial Line Internet Protocol (SLIP) or Point-to-Point Protocol (PPP) with PPP being the newer, approved standard. All of these protocols are used in point-to-point connections such as those on metropolitan area network (MAN) or wide area network (WAN) backbones or when we dial our Internet service provider (ISP) from home using a modem.

In local area networks (LANs) where connections are multipoint rather than point-to-point and require more line-sharing management, the Data Link layer is divided into two sublayers: the Logical Link Control layer and the Media Access Control layer. The Logical Link Control layer protocol performs many of the same functions as the point-to-point data link control protocols described above. The Media Access Control (MAC) layer protocols support methods of sharing the line among a number of computers. Among the most widely used MAC protocols are Ethernet (IEEE 802.3), Token Bus (IEEE 802.4), and Token Ring (IEEE 802.5) and their derivatives.

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<sup>1</sup> Adaptado de [http://searchnetworking.techtarget.com/sDefinition/0,,sid7\\_gci213881,00.html](http://searchnetworking.techtarget.com/sDefinition/0,,sid7_gci213881,00.html) e [http://www.eurocontrol.int/eec/public/standard\\_page/ERS\\_dataink.html](http://www.eurocontrol.int/eec/public/standard_page/ERS_dataink.html)

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Today, Data Link offers:

- ✍ Data Link Initiation Capabilities (DLIC) enabling data link communication between ATC Ground and aircraft systems. DLIC is initiated when the aircraft wants to use Aeronautical Telecommunication Network (ATN) for communication purposes. The DLIC service provides the log-on procedure to the ATN and exchanges the required application information. The DLIC process supports addressing requirements for Air Traffic Service Communication applications such as Controller Pilot Data Link Communications (CPDLC) and Automatic Dependent Surveillance (ADS);
- ✍ The DLIC supports the update of application information;
- ✍ The DLIC service propagates application information, implementing the contact procedure a given time before the centre exit;
- ✍ Controller Pilot Data Link Communications (CPDLC) application provides the ATS facility with Datalink communications services. Two main services have to be considered: ACM and ACL; The ATC Communications Management (ACM) service provides automated assistance to the aircrew, current and next controllers for conducting the transfer of ATC communications; The ATC Clearance (ACL) service provides the controller with the capability to issue clearances and requests for information. The pilot is provided with the capability to respond to messages, to request clearances and information and to report information;



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# Data Link

The Data Link module enables controller pilot data-link communication.

## Description

Data Link is based on a client-server architecture, which eases function distribution across the platform and provides flexibility to integrate new components with minimal impact on the existing architecture. OASIS middleware is used in order to hide communication and distribution issues from the components and also to shield the application from vendor specific implementations improving portability and interoperability.

## Objectives

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  - The DLIC supports the update of application information;
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- **Pilot Preference Down-link (PPD) automates the provision to the Controllers of the Aircrew preferences (the way their flight is to be conducted) and allows for the provision of those parameters to the Controllers even before the aircraft reaches their sector.**

## Contact

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