Galleon Whitepaper

Ethernet Connections

8-Wire vs 4 Wire

Revision history:

Rev.	Date	Changes	Sign
1.0	06-NOV-14	Document created	EB
		-	

Abstract

This document describes how to connect Ethernet 4-wire and 8-wire connections to Galleon Equipment.

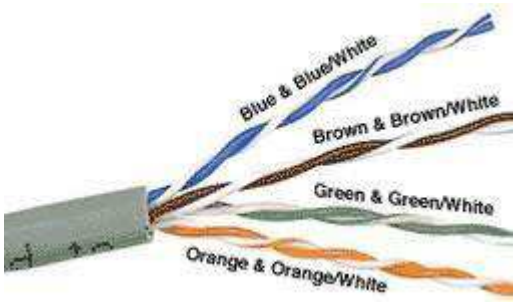
1 Ethernet Cable Connections

1.1 Introduction

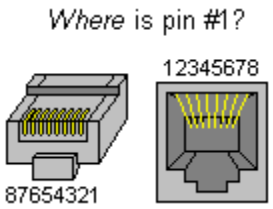
Inside the ethernet cable, there are 8 color coded wires. These wires are twisted into 4 pairs of wires, for a Gigabit Ethernet connection and 2 pairs of wires for 10/100 Ethernet connections.

Each pair has a common color theme. One wire in the pair being a solid or primarily solid colored wire and the other being a primarily white wire with a colored stripe (Sometimes ethernet cables won't have any color on the striped wire, the only way to tell which is which is to check which wire it is twisted around). Examples of the naming schemes used are: Orange (alternatively Orange/White) for the solid colored wire and White/Orange for the striped cable.

The twists are extremely important. They are there to counteract noise and interference. It is important to wire according to a standard to get proper performance from the Ethernet cable. The TIA/EIA-568-A specifies two wiring standards for an 8-position modular connector such as RJ45. The two wiring standards, T568A and T568B vary only in the arrangement of the colored pairs.



Color Coding



RJ45 Pin Numbering

1.2 Wiring Diagram

Table 1, Straight Through Wire Diagram for T568A Cables.

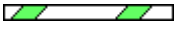
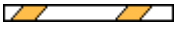
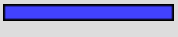
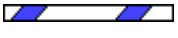
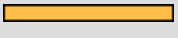
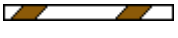
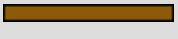
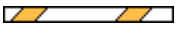
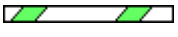
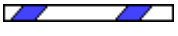
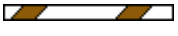
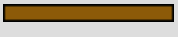
RJ45 Pin #	Wire Color (T568A)	Wire Diagram (T568A)	10Base-T Signal 100Base-TX Signal	1000Base-T Signal
1	White/Green		TX+	A+
2	Green		TX-	A-
3	White/Orange		RX+	B+
4	Blue		Unused	C+
5	White/Blue		Unused	C-
6	Orange		RX-	B-
7	White/Brown		Unused	D+
8	Brown		Unused	D-

Table 2, Straight Through Wiring Diagram for T568B Cables.

RJ45 Pin #	Wire Color (T568B)	Wire Diagram (T568B)	10Base-T Signal 100Base-TX Signal	1000Base-T Signal
1	White/Orange		TX+	A+
2	Orange		TX-	A-
3	White/Green		RX+	B+
4	Blue		Unused	C+
5	White/Blue		Unused	C-
6	Green		RX-	B-
7	White/Brown		Unused	D+
8	Brown		Unused	D-

2 Feedback and Sources

Any questions or comments to the contents are welcome and appreciated. Please contact Espen Bøch, Galleon VP of Sales and Marketing at eboch@galleonec.com or send your feedback to info@galleonec.com

Source: http://www.ertyu.org/steven_nikkel/ethernetcables.html