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ASCU Addressing Conversion

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Introduction

The Interchange Address (IA) that is configured on an agent−set control unit (ASCU) corresponds to the address that is configured on the router with the **alps ascu *id*** command (where *id* is the ASCU ID).

You must perform a bitswap conversion, to match the ASCU IAs against the ASCU IDs that are configured in the router. This conversion is only necessary for Airline Control (ALC) P1024B devices, not Unisys Terminal System (UTS) devices.

Prerequisites

Requirements

Because Airline Product Set (ALPS) is a 6−bit protocol which requires specific hardware and firmware, refer to the Platforms section of the Airline Product Set Training Supplement.

P1024B and P1024C protocols are only implemented in the remote customer premises equipment (CPE). All P1024B and P1024C frames are locally acknowledged, and only data traverses the WAN. The remote CPE is responsible for polling all of the ASCUs to which it is attached, which requires a Cirrus Logic CD2430 chipset on a synchronous serial interface module. To check the serial interface controller type on the remote CPE, issue one of these commands:

- **show interfaces serial *x*/*y*** Check the command output for this relevant part:

```
hereford# show interfaces serial 1/0

Serial1/0 is up, line protocol is up
  Hardware is CD2430 in sync mode
  MTU 1500 bytes, BW 128 Kbit, DLY 20000 usec, rely 255/255, load 1/255
  Encapsulation HDLC, loopback not set, keepalive not set
```

- **show controllers serial *x*/*y*** Check the command output for this relevant part:

```
hereford# show controllers serial 1/0

CD2430 Slot 1, Port 0, Controller 0, Channel 0, Revision 15
Channel mode is synchronous serial
idb 0x80978D74, buffer size 1524, V.35 DCE cable, clockrate 64000
```

AX.25 and EMTOX protocols are only implemented at the central CPE. All communication with the host use either AX.25 or EMTOX, and only data is sent over the WAN. TCP is required to ensure delivery of packets

across the WAN.

Note: The requirements are less stringent for the central CPE. No ALC local acknowledgment driver is required at the central CPE, so you can use any Cisco router.

Components Used

The configuration of ALPS in Cisco routers requires Cisco IOS® software with the IBM Feature set. Refer to the Cisco Feature Navigator II.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Conventions

Refer to Cisco Technical Tips Conventions for more information on document conventions.

ALPS ASCU Bitswapping

Use these steps to match the ASCU IAs with the ASCU IDs (an example is shown for an IA of **04**):

1. Convert the IA (which is hexadecimal) to binary.

   0x04 is equal to **0000 0100**.
2. Flip the trailing six bits of the IA.

   Do not forget that ALC addresses use only six bits.

   00 0100 becomes **11 1011**.
3. Invert the read direction (read the six flipped bits backwards).

   11 1011 becomes **11 0111**.
4. Expand back to eight bits.

   11 0111 becomes **0011 0111**.
5. Perform an OR operation between that eight−bit value and the eight−bit equivalent for 0x40 (0100 0000).

   0011 0111 OR

   0100 0000 equals

   0111 0111
6. Convert back to hexadecimal to get the *id* for the **alps ascu *id*** command on the router.

   0111 0111 becomes **0x77**.

Note: The router ASCU addressing scheme is compliant with the addressing scheme of the Societe Internationale de Telecommunications Aeronautiques (SITA). Therefore, a SITA terminal pad (TPAD) configured with an ASCU IA of **0x77** maps to an ALPS ASCU ID of **0x77** (the same value) on a Cisco router.

In the next table, the **ASCU** columns list a hexadecimal address that could be configured on the ASCU. The **Router** columns to the right of each **ASCU** column list the corresponding hexadecimal address to use when you issue the **alps ascu *id*** command on the router.

ASCU	Router	ASCU	Router	ASCU	Router	ASCU	Router
00	7F	10	7D	20	7E	30	7C
01	5F	11	5D	21	5E	31	5C
02	6F	12	6D	22	6E	32	6C
03	4F	13	4D	23	4E	33	4C
04	77	14	75	24	76	34	74
05	57	15	55	25	56	35	54
06	67	16	65	26	66	36	64
07	47	17	45	27	46	37	44
08	7B	18	79	28	7A	38	78
09	5B	19	59	29	5A	39	58
0A	6B	1A	69	2A	6A	3A	68
0B	4B	1B	49	2B	4A	3B	48
0C	73	1C	71	2C	72	3C	70
0D	53	1D	51	2D	52	3D	50
0E	63	1E	61	2E	62	3E	60
0F	43	1F	41	2F	42	3F	40

Related Information

- **Technology Support**
- **Product Support**
- **Technical Support & Documentation − Cisco Systems**

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