Choosing System Identity Codes and Programming Radios for a TaitNet Network

25 November 1999

The System Identity Code is continually broadcast by the control channel of the site. The system identity code has one part that identifies the network and another that identifies the site within the network. The radio units use the system identity code of a site together with their own programmable parameters and information about sites in the network to decide whether they are allowed to register on a site and when they should re-register.

This technical note:

- Describes the parameters that make up the system identity code and gives recommendations for them and for related radio programming parameters
- Provides some sets of system identity codes that follow the recommendations
- Lists other related site parameters
- Summarises the radio programming recommendations

This should enable you to choose system identity codes for most networks without needing to know about the individual fields and subfields that comprise the code. It should also give you guidance on how to best programme the radios that use the network.

However, if the regulatory authority requires a network identity that is not covered below, if you are adding a site to an existing system that used different guidelines, or if the sets below have already been used by other networks in the area, you will need to use different system identity codes. Contact the HelpDesk at Tait's Radio Systems Division for assistance.

Tait System Identity Code Policy

- Allow maximum possible scope for expansion while still allowing other systems to be installed in the same geographic area.
- The network should control which radios have access to particular sites and not the radio programming.
- Radio units must re-register when they move from one site to another.
- Radio units that move to a site while it is isolated from the rest of the network should re-register when the site is reconnected to the network.
- Unnecessary re-registration is discouraged.

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Fields within the System Identity Code

The following fields exist in the System Identity code.

- Network type
- OPID/NET
- Network dependent data. This has several sub-fields including

  Zone

  Area

  Free

  SIL
- Preferred NDD
- LAB

This section describes these fields and sub-fields and gives recommendations for them. For more information, see the Channel Control Module section of the Site Service Manual (M15XX-S2-812) or the MPT 1343 specification.

Network Type

The choice of network type determines the maximum number of sites possible and the number of other networks in the same geographical area.

On a particular frequency band in any geographical area there can be up to 4 *National networks* each with a maximum of 511 sites and up to 128 *Regional networks* each with a maximum of 15 sites.

Large networks will need to be national. Small networks that will not be expanded to more than 15 sites can be Regional

Recommendation

For T1540-based networks, select the *National network* type.

For T1530-based networks and standalone sites, select the *Regional network* type.

OPID field

The OPerator IDentity field is used in regional networks. It can take values between 0 and 127. In the radio programming software this field is represented by the item *Network Identity Code.*

Recommendation

Unless there is another regional network operating in the same area, set this field to zero (the first available OPID).

NET field

The Network Identity Code field is the equivalent of the OPID field for national networks. It can take values between 0 and 3.

Recommendation

Unless there is another national network operating in the same area, choose national network 1 (NET field set to 0).

Zone field

The Zone field can be used by the radio to determine which sites it is allowed to operate on but it is desirable that this is controlled by the network rather than the radio unit personalisation.

The choice of zone may also force some radios to reregister when a node to site link is restored. In Tait networks, only radios that have migrated to the site during the link down period need to reregister. All radios will do this regardless of the zone. Radios that are outside their home zone will make unnecessary re-registrations when the node site link is restored. To prevent this as many units as possible should be programmed with a home zone value that matches the zone of the sites in their usual area of operation.

Recommendation

Set the length of the zone field (LZ parameter) to zero.

Programme radios with a home zone of 0.

Do not programme zones into the radio unit's Acquisition Authorization data.

Area field

Radio units detect that they have moved to a new site when they encounter a system identity code with a different area field. To allow the maximum number of sites, the area field should be as long as possible. MPT 1343 allows radio units to use sites with area = 0 without registering. Area 0 should not be used.

It is also desirable that the area field bear some sort of relationship to the node and site numbers.

Recommendation

For National systems, set the length of the area field (LA parameter) to 9. Use the binary node number for the five most significant bits (MSB) of the area field. For node 32, use 00000. Use the binary site number for the four least significant bits of the area field. For site 16, use 0000. Site 16 on node 32 cannot be used, since its area would be 000000000.

For Regional systems, set the length of the area field (LA parameter) to 4. Use the binary site number for the area field. For site 0, use 1010.

Do not programme areas into the Acquisition Authorization data of the radio units.

SIL Field

Our site software does make provision for using the SIL field but it is not generally used.

Recommendation

Set the length of the SIL field (SIL parameter) to 0.

Free Field

The Free field is not used by our network and the radio programming software does not make any provision for it.

Preferred NDD

Generally access to sites should be controlled by the network rather than radio personalisation.

Recommendation

Do not programme NDD Preference data into the radio units.

LAB field

This field is only of interest on sites with multiple control channels. This is not supported by our network. LAB=001 allows all units to use a control channel.

Recommendation

Set the LAB field to 001. Any Radio Unit Control Category can be used.

As Tait networks do not support multiple registration, disable multiple registration in the radio units.

System Identity Codes

The tables below list system identity codes that result from applying the above guidelines. They can be used for new networks. When adding new sites to existing networks you may not be able to use these tables because you are constrained by the way existing radio units have been programmed and by the System Identity Codes of existing sites.

Table 1 lists 32 different sets for regional networks. Tables 2 to 5 list two different sets of codes for national networks.

Table 1 : Regional Networks — LZ=0 & LA=4

OPID/ Net- work ID	Sites									
	0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
0	0051	0009	0011	0019	0021	0029	0031	0039	0041	0049
1	00D1	0089	0091	0099	00A1	00A9	00B1	00B9	00C1	00C9
2	0151	0109	0111	0119	0121	0129	0131	0139	0141	0149
3	01D1	0189	0191	0199	01A1	01A9	01B1	01B9	01C1	01C9
4	0251	0209	0211	0219	0221	0229	0231	0239	0241	0249
5	02D1	0289	0291	0299	02A1	02A9	02B1	02B9	02C1	02C9
6	0351	0309	0311	0319	0321	0329	0331	0339	0341	0349
7	03D1	0389	0391	0399	03A1	03A9	03B1	03B9	03C1	03C9
8	0451	0409	0411	0419	0421	0429	0431	0439	0441	0449
9	04D1	0489	0491	0499	04A1	04A9	04B1	04B9	04C1	04C9
10	0551	0509	0511	0519	0521	0529	0531	0539	0541	0549
11	05D1	0589	0591	0599	05A1	05A9	05B1	05B9	05C1	05C9
12	0651	0609	0611	0619	0621	0629	0631	0639	0641	0649
13	06D1	0689	0691	0699	06A1	06A9	06B1	06B9	06C1	06C9
14	0751	0709	0711	0719	0721	0729	0731	0739	0741	0749
15	07D1	0789	0791	0799	07A1	07A9	07B1	07B9	07C1	07C9
16	0851	0809	0811	0819	0821	0829	0831	0839	0841	0849
17	08D1	0889	0891	0899	08A1	08A9	08B1	08B9	08C1	08C9
18	0951	0909	0911	0919	0921	0929	0931	0939	0941	0949
19	09D1	0989	0991	0999	09A1	09A9	09B1	09B9	09C1	09C9
20	0A51	0A09	0A11	0A19	0A21	0A29	0A31	0A39	0A41	0A49
21	0AD1	0A89	0A91	0A99	0AA1	0AA9	0AB1	0AB9	0AC1	0AC9
22	0B51	0B09	0B11	0B19	0B21	0B29	0B31	0B39	0B41	0B49
23	0BD1	0B89	0B91	0B99	0BA1	0BA9	0BB1	0BB9	0BC1	0BC9
24	0C51	0C09	0C11	0C19	0C21	0C29	0C31	0C39	0C41	0C49
25	0CD1	0C89	0C91	0C99	0CA1	0CA9	0CB1	0CB9	0CC1	0CC9
26	0D51	0D09	0D11	0D19	0D21	0D29	0D31	0D39	0D41	0D49
27	0DD1	0D89	0D91	0D99	0DA1	0DA9	0DB1	0DB9	0DC1	0DC9
28	0E51	0E09	0E11	0E19	0E21	0E29	0E31	0E39	0E41	0E49
29	0ED1	0E89	0E91	0E99	0EA1	0EA9	0EB1	0EB9	0EC1	0EC9
30	0F51	0F09	0F11	0F19	0F21	0F29	0F31	0F39	0F41	0F49
31	0FD1	0F89	0F91	0F99	0FA1	0FA9	0FB1	0FB9	0FC1	0FC9

Table 2 : National Network 1 (Sites 1–8) — NET/ Network Identity Code = 0, LZ=0 & LA=9

Site	1	2	3	4	5	6	7	8
Node 1	4089	4091	4099	40A1	40A9	40B1	40B9	40C1
Node 2	4109	4111	4119	4121	4129	4131	4139	4141
Node 3	4189	4191	4199	41A1	41A9	41B1	41B9	41C1
Node 4	4209	4211	4219	4221	4229	4231	4239	4241
Node 5	4289	4291	4299	42A1	42A9	42B1	42B9	42C1
Node 6	4309	4311	4319	4321	4329	4331	4339	4341
Node 7	4389	4391	4399	43A1	43A9	43B1	43B9	43C1
Node 8	4409	4411	4419	4421	4429	4431	4439	4441
Node 9	4489	4491	4499	44A1	44A9	44B1	44B9	44C1
Node 10	4509	4511	4519	4521	4529	4531	4539	4541
Node 11	4589	4591	4599	45A1	45A9	45B1	45B9	45C1
Node 12	4609	4611	4619	4621	4629	4631	4639	4641
Node 13	4689	4691	4699	46A1	46A9	46B1	46B9	46C1
Node 14	4709	4711	4719	4721	4729	4731	4739	4741
Node 15	4789	4791	4799	47A1	47A9	47B1	47B9	47C1
Node 16	4809	4811	4819	4821	4829	4831	4839	4841
Node 17	4889	4891	4899	48A1	48A9	48B1	48B9	48C1
Node 18	4909	4911	4919	4921	4929	4931	4939	4941
Node 19	4989	4991	4999	49A1	49A9	49B1	49B9	49C1
Node 20	4A09	4A11	4A19	4A21	4A29	4A31	4A39	4A41
Node 21	4A89	4A91	4A99	4AA1	4AA9	4AB1	4AB9	4AC1
Node 22	4B09	4B11	4B19	4B21	4B29	4B31	4B39	4B41
Node 23	4B89	4B91	4B99	4BA1	4BA9	4BB1	4BB9	4BC1
Node 24	4C09	4C11	4C19	4C21	4C29	4C31	4C39	4C41
Node 25	4C89	4C91	4C99	4CA1	4CA9	4CB1	4CB9	4CC1
Node 26	4D09	4D11	4D19	4D21	4D29	4D31	4D39	4D41
Node 27	4D89	4D91	4D99	4DA1	4DA9	4DB1	4DB9	4DC1
Node 28	4E09	4E11	4E19	4E21	4E29	4E31	4E39	4E41
Node 29	4E89	4E91	4E99	4EA1	4EA9	4EB1	4EB9	4EC1
Node 30	4F09	4F11	4F19	4F21	4F29	4F31	4F39	4F41
Node 31	4F89	4F91	4F99	4FA1	4FA9	4FB1	4FB9	4FC1
Node 32	4009	4011	4019	4021	4029	4031	4039	4041

Table 3 : National Network 1 (Sites 9–16) — NET/ Network Identity Code = 0, LZ=0 & LA=9

Site	9	10	11	12	13	14	15	16
Node 1	40C9	40D1	40D9	40E1	40E9	40F1	40F9	4081
Node 2	4149	4151	4159	4161	4169	4171	4179	4101
Node 3	41C9	41D1	41D9	41E1	41E9	41F1	41F9	4181
Node 4	4249	4251	4259	4261	4269	4271	4279	4201
Node 5	42C9	42D1	42D9	42E1	42E9	42F1	42F9	4281
Node 6	4349	4351	4359	4361	4369	4371	4379	4301
Node 7	43C9	43D1	43D9	43E1	43E9	43F1	43F9	4381
Node 8	4449	4451	4459	4461	4469	4471	4479	4401
Node 9	44C9	44D1	44D9	44E1	44E9	44F1	44F9	4481
Node 10	4549	4551	4559	4561	4569	4571	4579	4501
Node 11	45C9	45D1	45D9	45E1	45E9	45F1	45F9	4581
Node 12	4649	4651	4659	4661	4369	4671	4679	4601
Node 13	46C9	46D1	46D9	46E1	46E9	46F1	46F9	4681
Node 14	4749	4751	4759	4761	4769	4771	4779	4701
Node 15	47C9	47D1	47D9	47E1	47E9	47F1	47F9	4781
Node 16	4849	4851	4859	4861	4869	4871	4879	4801
Node 17	48C9	48D1	48D9	48E1	48E9	48F1	48F9	4881
Node 18	4949	4951	4959	4961	4969	4971	4979	4901
Node 19	49C9	49D1	49D9	49E1	49E9	49F1	49F9	4981
Node 20	4A49	4A51	4A59	4A61	4A69	4A71	4A79	4A01
Node 21	4AC9	4AD1	4AD9	4AE1	4AE9	4AF1	4AF9	4A81
Node 22	4B49	4B51	4B59	4B61	4B69	4B71	4B79	4B01
Node 23	4BC9	4BD1	4BD9	4BE1	4BE9	4BF1	4BF9	4B81
Node 24	4C49	4C51	4C59	4C61	4C69	4C71	4C79	4C01
Node 25	4CC9	4CD1	4CD9	4CE1	4CE9	4CF1	4CF9	4C81
Node 26	4D49	4D51	4D59	4D61	4D69	4D71	4D79	4D01
Node 27	4DC9	4DD1	4DD9	4DE1	4DE9	4DF1	4DF9	4D81
Node 28	4E49	4E51	4E59	4E61	4E69	4E71	4E79	4E01
Node 29	4EC9	4ED1	4ED9	4EE1	4EE9	4EF1	4EF9	4E81
Node 30	4F49	4F51	4F59	4F61	4F69	4F71	4F79	4F01
Node 31	4FC9	4FD1	4FD9	4FE1	4FE9	4FF1	4FF9	4F81
Node 32	4049	4051	4059	4061	4069	4071	4079	don't use

Table 4 : National Network 2 (Sites 1–8) — NET/ Network Identity Code = 1, LZ=0 & LA=9

Site	1	2	3	4	5	6	7	8
Node 1	5089	5091	5099	50A1	50A9	50B1	50B9	50C1
Node 2	5109	5111	5119	5121	5129	5131	5139	5141
Node 3	5189	5191	5199	51A1	51A9	51B1	51B9	51C1
Node 4	5209	5211	5219	5221	5229	5231	5239	5241
Node 5	5289	5291	5299	52A1	52A9	52B1	52B9	52C1
Node 6	5309	5311	5319	5321	5329	5331	5339	5341
Node 7	5389	5391	5399	53A1	53A9	53B1	53B9	53C1
Node 8	54409	5411	5419	5421	5429	5431	5439	5441
Node 9	5489	5491	5499	54A1	54A9	54B1	54B9	54C1
Node 10	5509	5511	5519	5521	5529	5531	5539	5541
Node 11	5589	5591	5599	55A1	55A9	55B1	55B9	55C1
Node 12	5609	5611	5619	5621	5629	5631	5639	5641
Node 13	5689	5691	5699	56A1	56A9	56B1	56B9	56C1
Node 14	5709	5711	5719	5721	5729	5731	5739	5741
Node 15	5789	5791	5799	57A1	57A9	57B1	57B9	57C1
Node 16	5809	5811	5819	5821	5829	5831	5839	5841
Node 17	5889	5891	5899	58A1	58A9	58B1	58B9	58C1
Node 18	5909	5911	5919	5921	5929	5931	5939	5941
Node 19	5989	5991	5999	59A1	59A9	59B1	59B9	59C1
Node 20	5A09	5A11	5A19	5A21	5A29	5A31	5A39	5A41
Node 21	5A89	5A91	5A99	5AA1	5AA9	5AB1	5AB9	5AC1
Node 22	5B09	5B11	5B19	5B21	5B29	5B31	5B39	5B41
Node 23	5B89	5B91	5B99	5BA1	5BA9	5BB1	5BB9	5BC1
Node 24	5C09	5C11	5C19	5C21	5C29	5C31	5C39	5C41
Node 25	5C89	5C91	5C99	5CA1	5CA9	5CB1	5CB9	5CC1
Node 26	5D09	5D11	5D19	5D21	5D29	5D31	5D39	5D41
Node 27	5D89	5D91	5D99	5DA1	5DA9	5DB1	5DB9	5DC1
Node 28	5E09	5E11	5E19	5E21	5E29	5E31	5E39	5E41
Node 29	5E89	5E91	5E99	5EA1	5EA9	5EB1	5EB9	5EC1
Node 30	5F09	5F11	5F19	5F21	5F29	5F31	5F39	5F41
Node 31	5F89	5F91	5F99	5FA1	5FA9	5FB1	5FB9	5FC1
Node 32	5009	5011	5019	5021	5029	5031	5039	5041

Table 5 : National Network 2 (Sites 9–16) — NET/ Network Identity Code = 1, LZ=0 & LA=9

Site	9	10	11	12	13	14	15	16
Node 1	50C9	50D1	50D9	50E1	50E9	50F1	50F9	5081
Node 2	5149	5151	5159	5161	5169	5171	5179	5101
Node 3	51C9	51D1	51D9	51E1	51E9	51F1	51F9	5181
Node 4	5249	5251	5259	5261	5269	5271	5279	5201
Node 5	52C9	52D1	52D9	52E1	52E9	52F1	52F9	5281
Node 6	5349	5351	5359	5361	5369	5371	5379	5301
Node 7	53C9	53D1	53D9	53E1	53E9	53F1	53F9	5381
Node 8	5449	5451	5459	5461	5469	5471	5479	5401
Node 9	54C9	54D1	54D9	54E1	54E9	54F1	54F9	5481
Node 10	5549	5551	5559	5561	5569	5571	5579	5501
Node 11	55C9	55D1	55D9	55E1	55E9	55F1	55F9	5581
Node 12	5649	5651	5659	5661	5369	5671	5679	5601
Node 13	56C9	56D1	56D9	56E1	56E9	56F1	56F9	5681
Node 14	5749	5751	5759	5761	5769	5771	5779	5701
Node 15	57C9	57D1	57D9	57E1	57E9	57F1	57F9	5781
Node 16	5849	5851	5859	5861	5869	5871	5879	5801
Node 17	58C9	58D1	58D9	58E1	58E9	58F1	58F9	5881
Node 18	5949	5951	5959	5961	5969	5971	5979	5901
Node 19	59C9	59D1	59D9	59E1	59E9	59F1	59F9	5981
Node 20	5A49	5A51	5A59	5A61	5A69	5A71	5A79	5A01
Node 21	5AC9	5AD1	5AD9	5AE1	5AE9	5AF1	5AF9	5A81
Node 22	5B49	5B51	5B59	5B61	5B69	5B71	5B79	5B01
Node 23	5BC9	5BD1	5BD9	5BE1	5BE9	5BF1	5BF9	5B81
Node 24	5C49	5C51	5C59	5C61	5C69	5C71	5C79	5C01
Node 25	5CC9	5CD1	5CD9	5CE1	5CE9	5CF1	5CF9	5C81
Node 26	5D49	5D51	5D59	5D61	5D69	5D71	5D79	5D01
Node 27	5DC9	5DD1	5DD9	5DE1	5DE9	5DF1	5DF9	5D81
Node 28	5E49	5E51	5E59	5E61	5E69	5E71	5E79	5E01
Node 29	5EC9	5ED1	5ED9	5EE1	5EE9	5EF1	5EF9	5E81
Node 30	5F49	5F51	5F59	5F61	5F69	5F71	5F79	5F01
Node 31	5FC9	5FD1	5FD9	5FE1	5FE9	5FF1	5FF9	5F81
Node 32	5049	5051	5059	5061	5069	5071	5079	don't use

Other Site Parameters Related to System Identity Code and Radio Registration

- Enable Temporary Registration Mode in both the SCU and CCM for all multi-site systems.

- Different values of SYNC and SYNT need to be used for French networks.

	Normal (Default)	French
SYNC	C4D7	B433
SYNT	3B28	4BCC

Summary of Radio Programming Recommendations

Parameter	T1540-based Network	T1530-based Network
Unit – Acquisition Data Screen		
Home zone	0	
Acquisition Authorisation data	No zones or areas	
NDD Preference data	None	
Network – Identity screen		
Network type	National	Regional
Network Identity Code	0[a]	
Zone field length	0	
Area field length	9	4
SIL field length	0	
SYNC sequence	C4D7[b]	
Multiple registration	Disabled	

a. If already used by a network in the area, use the lowest available number.
b. This is the value for most systems. French systems use B433.

Issuing Authority

This TN was issued by: John Crossland
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