

Programming a T-1 in an ICP

MX Controller

Programming a T-1 is almost the same for an ICP as it is for a Digital or ML/EL except for a couple of small things which, if you're not aware of them, will frustrate you and lead you to believe you have a hardware problem where a programming problem exists. When installing a T-1 Module on an ICP, you must remember that the T-1 module will not be seen in form 1 and the lights on that module will not light until the T-1 link is **entirely** programmed. If you haven't completed ALL of the programming for a T-1, when you call Tech Support you will be asked to complete your programming because that situation is an incomplete task issue, not a troubleshooting issue.

Note: T1 Modules can be installed in MMC 1 or MMC 2 of an MX Controller, will speak ESF or SF, and have a built-in CSU.

To program a T-1 on a T-1 module on the controller:

- 1.) In Form 53, MMC1 and/or MMC2 can be changed to Module Type: T1. Move the cursor down to an unused bay and "Program" and "Confirm" (the ICP will reset, this is normal). If there are T1 modules in both positions, both modules will be programmed in the same bay; therefore we would see T1 appear under MMC1 and MMC2 in the same row. For example, Row 6 would show T1 under both MMC1 and MMC2.
- 2.) The module in MMC1 is programmed (in Form 1) as slot 2 for the first link, and slot 4 for the second link. The module in MMC2 is programmed as slot 6 for the first link and slot 8 for the second link. So it is possible to have two T1 modules installed in Bay X, with slots 2, 4, 6 and 8 programmed as T1 trunks in Form 1.

If the MMC1 module is, for example, a Quad CIM, and MMC2 module is a T1, then Form 53 will show 4 connectors for the Quad CIM to be programmed as one bay each, and the T1 module (in MMC2) will be programmed as a separate bay. And in Form 1, the T1 bay will use slots 6 and 8.

OK, in practical terms for an average installation that has a T-1 Module in MMC 1 and is already programmed as bay 5 in form 53(doesn't have to be 5, just is in this example): In form 1 go to Bay 5 slot 2 (slot 2 for the 1st link on a T-1 module in MMC1), and program a T-1 card in slot 2.

- 3.) Program a Class of Service for the T-1. For E&M trunks, enable COS option 802 (Limited Wait for Dial Tone)
- 4.) In form 4, make Option 48 = 1 second
- 5.) In form 13, select a T-1 E&M circuit descriptor and ensure that the options reflect WINK/WINK and DTMF to Yes (or Telco settings if different but most use wink/wink)

6.) Form 15, program **1 trunk** with the class of service you made in step 3 above and the circuit descriptor number (CDN) you made in step 5. **Program 1 trunk** for now because if you make a mistake and have to change something in the T-1 link, you will have to delete all trunks before altering the link. Program the rest of your trunks *after* the link is tested and operational. Typical DID trunks from your provider are 4 digit DID so N in form 15 will be 4 (you expect 4 digits from telco). M stands for the number of digits to absorb. Most DID links don't need any digits absorbed so M will be 0. X is the digits to be inserted. Leave this blank if you don't want to insert anything. If you put a 0 for X it will insert a 0, then the switch will get 0XXXX; not good. If you plan to use digit translation in your ICP you will need to program Feature 67 (Digit Translation) in form 2 (*7 will work for most installs). Use only two characters for feature 67 because you'll need to put the feature access code for digit translation in X in form 15 and X can only be a maximum of 2 digits. The access code for digit translation will send the digits received to form 55 (Digit Translation). In form 55, ignore the DID prefix column. If you want to know what it means, look it up but you don't need to mess with it to make this work. From the DID range purchased from the telco, go to the corresponding bin number and program where you want the call to go in Day, Night 1, and Night 2. On an EL or a digital you had to use abbreviated dial access and did not have a night1 or night 2 answer point. This is much more robust and easier to follow.

7.) Put the trunk you made in step 6 in a trunk group in form 16.

8.) Make a Link Descriptor in Form 42. Most of the DEFAULT values work fine in the United States.

9.) Assign the Link Descriptor to the T1 trunks in Form 43. (*At this point the T-1 module should light up and will appear as installed in form 1.*) If the module is still dark, check the above directions because unless each step is completed correctly, the module will not energize and work.

10.) In Form 44, assign the Bay and Slot of the T1 from which the switch receives its clock source. This should be the Bay and Slot of the T-1 programmed in form 1.

11.) Hardloop the T-1 to itself. If you don't have a loopback plug, make one by wiring pin 2-4 and pin 3-5 on an RJ-45. Stick it in the T-1 module left side plug and you should see the light on the T-1 module go from red to green. This means your T-1 is good and should work with a like programmed T-1 link.

Plug the Provider's T-1 into the T-1 module and verify it goes green (synchs). If it doesn't, then the problem is a mismatched protocol. Verify the parameters you selected in programming match what the Provider is sending.