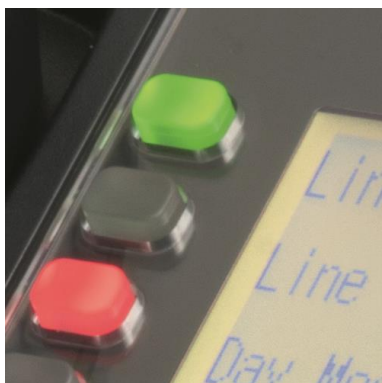


# The SL2100 Quick Install Guide: Toll Restriction

Out of the  
box  
installations  
for resellers



---

This guide explains the installation, configuration and operation of the SL2100 Telephone System including the exchange line and telephone connections.

Further information is available on BusinessNet.

Please keep all information supplied for future reference.

Regulatory Notice.

Refer to the Declaration of Conformity shown in the SL2100 Hardware Manual

Warning: This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

---

Contents

<b>1 – What is Toll Restriction?</b> .....	<b>4</b>
<b>2 - Overview of Toll Restriction Operation</b> .....	<b>5</b>
<b>3 – Using PCPro to configure Toll Restriction</b> .....	<b>5</b>
<b>4 – Setup Toll Restriction</b> .....	<b>6</b>
Step 1 – Plan your Toll Restriction .....	6
Step 2 – Assign the Toll Tables to each Toll Class.....	7
Step 3 – Enter the Restrict and Permit numbers within the tables.....	9
Step 4 – Use the ‘Toll number test’ feature to check your toll restriction .....	10
<b>5 – Toll Restriction Related Features</b> .....	<b>11</b>
Automatic Trunk to Trunk Transfer.....	11
Toll Restriction enable/disable for Trunks .....	11
Speed dials.....	12
Mobile Extensions .....	12
<b>6 – Worksheet</b> .....	<b>13</b>
<b>7 – Example</b> .....	<b>15</b>

## **1 – What is Toll Restriction?**

The Toll Restriction feature is used to analyse numbers dialled by telephone extension users, or system features such as voice mail or trunk-to-trunk transfers. It compares the numbers to a set of rules to decide if the call should be permitted or blocked.

The aim of Toll Restriction is to restrict the ability to specific numbers, and prevent misuse of the telephone system.

Examples of blocked numbers could be

- High cost premium rate or international numbers
- Directory services
- Mobile phone numbers

This guide explains the setup required for Toll Restriction and it is assumed you have a knowledge of the SL2100 system and configuration using PCPro.

It does not include all Toll Restriction features available, please refer to the Features & Specifications manual for further details:

- Walking Toll Restriction
- Toll Restriction Override
- Toll Restriction – Dial Block

***Note – You must always ensure that Emergency Calls can be made on all outgoing trunks and for all Day/Night modes in use.***

### **Hardware Required**

Toll Restriction is a standard system feature and does not require any additional hardware

### **Telephone Numbering Plans**

Numbering plans can be found on the web or by consulting your network provider.

For example, details of the UK PSTN Numbering plan can be found at:

Ofcom: <http://www.ofcom.org.uk/static/numbering/#pers>

Details of the International Numbering plan can be found at:

ITU: <https://www.itu.int/oth/T0202.aspx?parent=T0202>

Use the worksheet at the end of this guide to plan the toll restriction required by the customer.

## 2 - Overview of Toll Restriction Operation

Each extension is assigned to a Toll Restriction class for each Day/Night mode 1~8

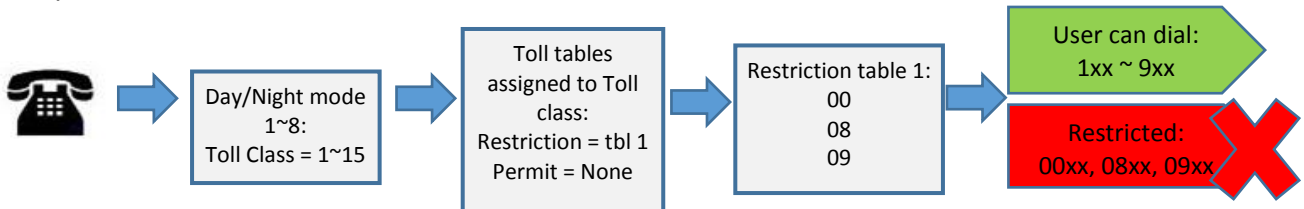
There are 15 Toll Restriction classes available.

Each Toll Restriction class has a range of tables that can be applied, the tables work as filters to define the numbers that can be dialled via an outgoing trunk.

Toll Restriction is applied to all trunk call types: analogue, ISDN or SIP trunks.

The tables define the leading digits, once a user's dialled digits match an entry the call will be automatically disconnected.

Example:



## 3 – Using PCPro to configure Toll Restriction

Toll Restriction can be configured using the Toll Restriction Wizard in **Quick Install >Extensions >Toll restriction**.

The screenshot shows the EasyEdit software interface for configuring Toll Restriction. The interface includes a search bar, options for showing ports and classes, a table of extensions, a grid for Toll Classes, and a table for Restriction Tables. A red box highlights the 'Toll Classes' grid, and a red '3' is placed over the 'Restriction Table' table.

T	Port	Nu...	Name	1	2	3	4	5	6	7	8
001	200	Extn 200	2	2	2	2	2	2	2	2	2
002	201	Extn 201	2	2	2	2	2	2	2	2	2
003	202	Extn 202	2	2	2	2	2	2	2	2	2
004	203	Extn 203	2	2	2	2	2	2	2	2	2
005	204	Extn 204	2	2	2	2	2	2	2	2	2
006	205	Extn 205	2	2	2	2	2	2	2	2	2
007	206	Extn 206	2	2	2	2	2	2	2	2	2
008	207	Extn 207	2	2	2	2	2	2	2	2	2
009	208	Extn 208	2	2	2	2	2	2	2	2	2
010	209	Extn 209	2	2	2	2	2	2	2	2	2
011	210	Extn 210	2	2	2	2	2	2	2	2	2
012	211	Extn 211	2	2	2	2	2	2	2	2	2
013	212	Extn 212	2	2	2	2	2	2	2	2	2
014	213	Extn 213	2	2	2	2	2	2	2	2	2
015	214	Extn 214	2	2	2	2	2	2	2	2	2
016	215	Extn 215	2	2	2	2	2	2	2	2	2
017	216	Extn 216	2	2	2	2	2	2	2	2	2
018	217	Extn 217	2	2	2	2	2	2	2	2	2
019	218	Extn 218	2	2	2	2	2	2	2	2	2
020	219	Extn 219	2	2	2	2	2	2	2	2	2
021	220	Extn 220	2	2	2	2	2	2	2	2	2
022	220	Extn 220	2	2	2	2	2	2	2	2	2

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
International Call ...															
International Call ...															
Common Restrict...															
Common Permit C...															
Speed Dial Comm...															
Speed Dial Group...															
Internal Call Restr...															
PBX Call Restrict...															
TIE Call Restriction															
Trunk Transfer R...															
Common Hold Re...															
Restriction Table	0	0	1	2	3	4	0	0	0	0	0	0	0	0	0
Permit Code Table	0	0	1	2	3	4	0	0	0	0	0	0	0	0	0
Maximum Digit Ta...	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Internatio...	Common	General - Restrict			
Restrict	Restrict	1	2	3	4
00					
09					
0871					
0872					
0873					
070					
076					


## 4 – Setup Toll Restriction

### Step 1 – Plan your Toll Restriction

Use the worksheet to plan your toll restriction setup.

You will need to know:

- The trunks and extensions installed on the system
- Night modes in use
- Are any Virtual Loopback or Mobile extensions configured?
- InMail voicemail operation for message notification to external numbers
- The customer’s restricted/permitted numbers per extension & night mode
- Are speed dials setup & are users able to edit them?

Click the Extension view button  to show the extensions on your system.

Assign the Toll Restriction class for each extension, Virtual Loopback, InMail & Mobile extension user.

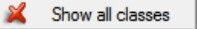
				Night mode							
T.	Port	Num...	Name	1	2	3	4	5	6	7	8
001	200	Extn200		1	3	2	2	2	2	2	2
002	201	Extn201		1	3	2	2	2	2	2	2
003	202	Extn202		1	3	2	2	2	2	2	2
004	203	Extn203		2	3	2	2	2	2	2	2
005	204	Extn204		2	3	2	2	2	2	2	2
006	205	Extn205		2	3	2	2	2	2	2	2
007	206	Extn206		2	3	2	2	2	2	2	2
008	207	Extn207		2	3	2	2	2	2	2	2
009	208	Extn208		2	3	2	2	2	2	2	2
010	209	Extn209		2	3	2	2	2	2	2	2
113	312	VM1		3	3	3	3	3	3	3	3
114	313	VM2		3	3	3	3	3	3	3	3
115	314	VM3		3	3	3	3	3	3	3	3
116	315	VM4		3	3	3	3	3	3	3	3
117	316	VM5		3	3	3	3	3	3	3	3
118	317	VM6		3	3	3	3	3	3	3	3
119	318	VM7		3	3	3	3	3	3	3	3
120	319	VM8		3	3	3	3	3	3	3	3
121	320	VM9		3	3	3	3	3	3	3	3
122	321	VM10		3	3	3	3	3	3	3	3
123	322	VM11		3	3	3	3	3	3	3	3
124	323	VM12		3	3	3	3	3	3	3	3
125	324	VM13		3	3	3	3	3	3	3	3
126	325	VM14		3	3	3	3	3	3	3	3
127	326	VM15		3	3	3	3	3	3	3	3
128	327	VM16		3	3	3	3	3	3	3	3

Assign the Toll Restriction class for each extension & night mode used.  
 In this example:  
 Toll class 1 = Non restrictive  
 Toll class 2 = Typical Day mode restrictions  
 Toll class 3 = Very restrictive night mode class

Assign a restrictive class to the InMail voicemail channels.  
 Unless the customer specifically wants the voicemail to dial out or have message notification to external numbers, in which case setup a Toll class just for the InMail channels

Any unused extensions should be set to a restrictive toll class.  
 Any unused night modes should also be set to a restrictive toll class.

**Step 2 – Assign the Toll Tables to each Toll Class**

Click the Show all classes button  to toggle the view so that only the classes you're using are displayed.

	Toll Cl...		
	1	2	3
International Call Restriction Table	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
International Call Permit Code Table	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Common Restriction Table	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Common Permit Code Table	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Speed Dial Common Restriction	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Speed Dial Group Restriction	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Internal Call Restriction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PBX Call Restriction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TIE Call Restriction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trunk Transfer Restriction for Incomplete Dial	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Common Hold Restriction for Incomplete Dial	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Restriction Table	0	0	1
Permit Code Table	0	0	1
Maximum Digit Table Assignment	0	0	0

Assign the Toll tables to the Toll classes you're using  
 = Not assigned,  = assigned

Restrict, Permit & Maximum digit = tables 1~4  
 0 = not assigned

**International Call Restrict / Permit tables**

These are typically used for International numbers.

**Common Restriction Table**

This is one table that can be applied to all Toll Classes, this usually contains the restricted numbers that should be applied to all or a majority of extensions.

**Common Permit Table**

This is one table that can be applied to all Toll Classes, contains the exemption numbers that should be applied to the Common Restriction table.

**Speed Dial Common / Group Restriction**

Should numbers dialled via speed dial have the Toll Restrictions applied?

When assigned the restriction will be applied.

You should assign this item if users are able to edit the speed dial list, as this will prevent potential Toll Fraud by users.

**Internal Call Restriction**

Should users be able to make internal calls? This is a Yes/No option, the toll restriction tables are not applied to internal call.

**PBX Call Restriction**

This only applies if the trunks are not connected directly to the exchange lines (i.e. behind another PBX).

**TIE Call Restriction**

This only applies if the trunks are not connected directly to the exchange lines (i.e. as Tie lines to another system).

**Trunk Transfer / Common Hold Restriction for Incomplete Dial**

This option prevents a user dialling a partial outgoing call and then transferring to another user that has Toll Restriction applied to then complete the dialled number and bypass their restriction.

You should usually assign these options.

**Restriction Table**

There are 4 tables available (0 = none assigned) that are shared by the 15 Toll Restriction Classes.

**Permit Code Tables**

There are 4 tables available (0 = none assigned), each linked to the corresponding Restriction Table. Each table contains the exemption numbers that should be applied to the corresponding Restriction table.

**Maximum Digit Table Assignment**

There are 4 options available (0 = no maximum digit length assigned). For each option you can define the maximum length of digits that can be dialled, maximum value is 30 digits. This can be used for very basic toll restriction, for example to allow users to dial local calls only by setting a maximum digit length of 6.

**Operation of the Permit Tables**

Each Permit table will define the numbers that can be dialled within the range of restricted numbers you have defined in the corresponding Restriction table.

<b>Restriction table</b>	<b>Corresponding Permit table</b>
Common Restriction table	Common Permit table
Restriction table 1	Permit table 1
Restriction table 2	Permit table 2
Restriction table 3	Permit table 3
Restriction table 4	Permit table 4

Permit tables are used when you have a block of restricted numbers but want to allow selected numbers within that block.

Example: A customer wants to restrict calls to all Premium Rate numbers 09xx xxxxxx except 0901 234567

<b>Restriction table</b>	<b>Corresponding Permit table</b>
09	0901234567



**Step 3 – Enter the Restrict and Permit numbers within the tables**

Inter...	Common	General - Restrict			
Res...	Restrict	1	2	3	4
	09	00	00	1	
	087	07	01	2	
	070		02	3	
	076		03	4	
			04	5	
			05	6	
			06	7	
				8	
				9	
				0	

Inter...	Common	General - Permit			
Permit	Permit	1	2	3	4
		0795	0115	999	
			0206	112	
			0207	101	

Enter the numbers from your worksheet into each toll table used

Enter the Prefix numbers and Maximum digit length, if used.

Prefix	
141	
1470	
1280	
*	
#	

Max digits	
1	30
2	30
3	30
4	30

Tip: The prefix numbers are 'network' service codes. They can be prefixed to numbers in an attempt to circumvent toll restriction.

- 141 – Withold caller ID
- 1470 – Force caller ID
- 1280 – Bypass Carrier Pre-Selection

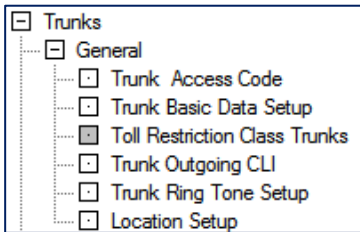


## 5 – Toll Restriction Related Features

### Automatic Trunk to Trunk Transfer

The SL2100 can be setup to route incoming calls directly to an external number, for example a DDI can be routed to an external number.

A Toll restriction class is applied to all trunks and is assigned in Trunks – General – Toll Restriction Class Trunks



Enter the toll restriction class for each night mode. Power failure is during external battery backup operation.

Trunk	Trunk Name	Mode 1	Mode 2	Mode 3	Mode 4	Mode 5	Mode 6	Mode 7	Mode 8	Power Failure Mode
001	Line 001	1	1	1	1	1	1	1	1	1
002	Line 002	1	1	1	1	1	1	1	1	1
003	Line 003	1	1	1	1	1	1	1	1	1
004	Line 004	1	1	1	1	1	1	1	1	1

A phone and a trunk will have a Restriction Class. The higher class applies for outgoing calls.

For example:

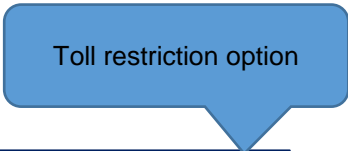
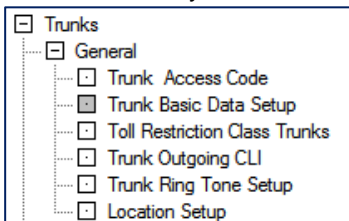
- When trunk class is 01 and station class 02, Toll Restriction Class 02 is applied.
- When trunk class is 15 and station class 03, Toll Restriction Class 15 is applied.

It is recommended that you leave the trunks in toll class 1 and use higher classes for the extensions as the trunk toll class is applied to both trunk to trunk calls and extension calls.

### Toll Restriction enable/disable for Trunks

You can enable/disable toll restriction for each trunk port.

Use PCPro Easy Edit – Trunks – General – Trunk Basic Data Setup



Select the Toll Restriction option.

Trunk	Trunk Name	Transmit Gain Level	Receive Gain Level	Conference and Transfer Calls Transm...	Conference and Transfer Calls Receiv...	SMDR Print-out	Outgoing Calls	Toll Restriction
001	Line 001	32	32	32	16	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
002	Line 002	32	32	32	16	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
003	Line 003	32	32	32	16	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
004	Line 004	32	32	32	16	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Speed dials**

The system's Common & Group Speed dial numbers can be set to follow the toll restriction settings of the phone.

	1	2	3	4	5	6
International Call Restriction Table	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
International Call Permit Code Table	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Common Restriction Table	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Common Permit Code Table	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Speed Dial Common Restriction	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Speed Dial Group Restriction	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

Toll classes 1&2 have speed dial restriction enabled.  
Other toll classes do not have restriction applied to call made via speed dials.

If the users have the ability to edit the system or group speed dials then you should enable toll restriction for speed dials, otherwise it is possible for users to set a speed dial that can bypass toll restriction.

You can disable speed dial editing within the Class of Service (COS) options.

Quick Install – Extensions – COS – uncheck the Speed Dial Entries (store option)

**Mobile Extensions**

Toll restriction is applied to the Mobile Extension proxy port.

Mobile extensions are setup by assigning an unused extension port as the Mobile Extension proxy port.

Options

Show all ports

				Night mode							
T.	Port	Nu...	Name	1	2	3	4	5	6	7	8
	028	227	Extn 227	2	2	2	2	2	2	2	2
	029	228	Extn 228	2	2	2	2	2	2	2	2
	030	229	Extn 229	2	2	2	2	2	2	2	2
	031	230	Mob Extn 1	4	4	4	4	4	4	4	4
	032	231	Extn 231	2	2	2	2	2	2	2	2

Select 'Show all ports' to view the Mobile Extensions within the Toll Restriction area



**Restrict/Permit Tables 1~4**

Define the restricted and permitted numbers, then choose the Toll Class to be used.  
 For each Day/Night mode in use assign the extensions that should use each Toll Class.

Toll Restriction Table	Restricted Numbers	Permitted Numbers	Toll Classes (1~15)	Applied to Day/Night Mode	Apply to these extensions
1				1 -	
				2 -	
				3 -	
				4 -	
				5 -	
				6 -	
				7 -	
				8 -	
2				1 -	
				2 -	
				3 -	
				4 -	
				5 -	
				6 -	
				7 -	
				8 -	
3				1 -	
				2 -	
				3 -	
				4 -	
				5 -	
				6 -	
				7 -	
				8 -	
4				1 -	
				2 -	
				3 -	
				4 -	
				5 -	
				6 -	
				7 -	
				8 -	

There are four Toll Restriction/permit tables available, each can be applied to more than one Toll Class.  
 Each Toll Class can be applied to more than one Day/Night mode.

**Prefix numbers**

List the prefix numbers, eg 141, 1470, 1280. You will need to add \* and # if ISDN trunks are installed.

Prefix Numbers



Example

**Restrict/Permit Tables 1~4**

Define the restricted and permitted numbers, then choose the Toll Class to be used.  
 For each Day/Night mode in use assign the extensions that should use each Toll Class.

Toll Restriction Table	Restricted Numbers	Permitted Numbers	Toll Class (1~15)	Applied to Day/Night Mode	Apply to these extensions
1	00 07	0795	1	1 - Day	200 201
				2 - Night	200 201
				3 -	
				4 -	
				5 -	
				6 -	
				7 -	
				8 -	
2	00 01 02 03 04 05 06	0115 0206 0207	2	1 - Day	202 203 204
				2 -	
				3 -	
				4 -	
				5 -	
				6 -	
				7 -	
				8 -	
3	1 9 2 0 3 4 5 6 7 8	999 112 101	3	1 - Day	205~211 581~596
				2 - Night	202~211 581~596
				3 -	
				4 -	
				5 -	
				6 -	
				7 -	
				8 -	
4				1 -	
				2 -	
				3 -	
				4 -	
				5 -	
				6 -	
				7 -	
				8 -	

There are four Toll Restriction/permit tables available, each can be applied to one or more Toll Classes.  
 Each Toll Class can be applied to more than one Day/Night mode.

**Prefix numbers**

List the prefix numbers, eg 141, 1470, 1280. You will need to add \* and # if ISDN trunks are installed.

Prefix Numbers
141
1470
1280
*
#