The Programmer's Helper
(Power Tools for Programmers)

The Programmer's Helper (TPH) is a set of programming productivity tools for QM (and other MuliValue systems) that help you write and maintain applications quickly and efficiently. In addition it enforces a common user interface and a common coding style. Your users will benefit from a common interface (and less training and fewer support calls for you). A common coding style means that programmers can move between different modules of your application with less time lost on trying to "understand" each program.

TPH will improve your programmer's productivity. Less time will be spent on program maintenance. Tasks such as adding or removing fields from a screen will take almost no time at all. Typographical and logical programming errors are reduced.

An added benefit is that TPH writes actual QM Basic code. This code is practically self-contained. There are a number of "helper" and "utility" subroutines that are called (for modularity and to make it easier to customize TPH). The source code for these subroutines is included with TPH. There is no mysterious "black box" of a run time module.
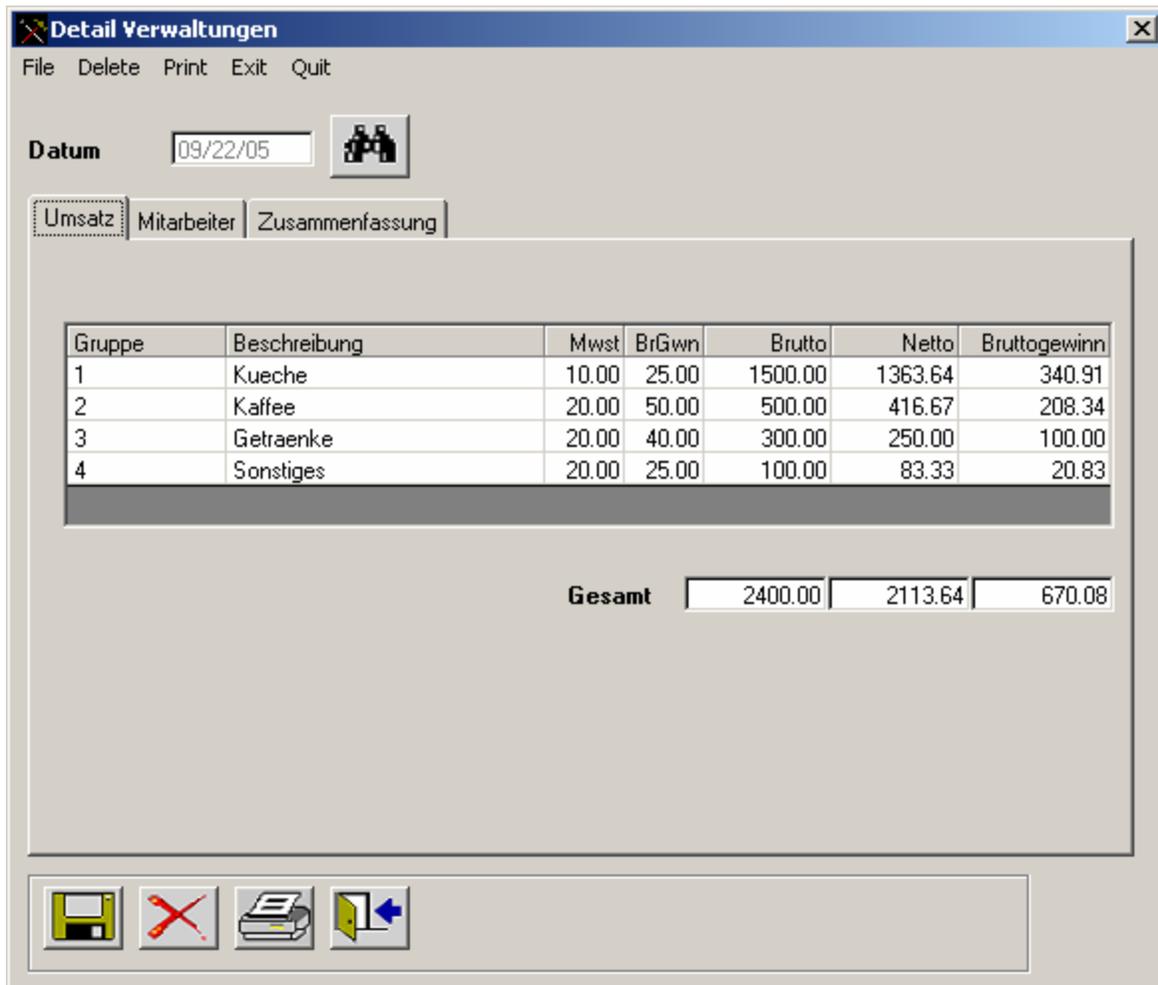
One of the additional challenges we face is to modernize our applications without losing our current investment in software and skills. The Programmer's Helper can help you meet those challenges.

TPH allows you to design an application that will run in both a character based mode ("Green Screen") or as modern Windows application ("GUI" or "Graphical User Interface"). Why is this important? For many high volume data entry applications a character based application allows for faster data entry and increased throughput. Also, a TPH generated character based program can be fairly seamlessly integrated into your current application. When all screens have been converted, you can switch to the GUI mode.

For example, the following "Green Screen"

```
Detail Werwaltungen                                      ENTER.DETAIL


   Datum   09/22/05


 1.Umsatz                   3.Mitarbeiter              5.Zusammenfassung


      Gruppe       Beschreibung         Mwst BrGwn    Brutto     Netto Bruttogew.
2.1  1            Kueche               10.00 25.00   1500.00   1363.64    340.91
2.2  2            Kaffee               20.00 50.00    500.00    416.67    208.34
2.3  3            Getraenke            20.00 40.00    300.00    250.00    100.00
2.4  4            Sonstiges            20.00 25.00    100.00     83.33     20.83
2.5

                                       Gesamt        2400.00   2113.64    670.08




File   Edit   Delete   Step   Zoom   Next   Prev   Add   DelVal   Ins   Print   Exit
Quit
File the item
```

Is easily converted to this GUI form.

While there are two separate programs, you business logic and custom programming are shared between them.

What Does it Do?

There are four major "tools" in TPH

- Database Tool
- Data Entry Screen Writing Tool
- Report Writing Tool
- Menu Tool

The Database Tool allows you to create data files and dictionaries. It also lets you define relationships between files and can automatically generate database "Triggers" that will be used to keep data in separate files synchronized. You also can define and build index files for faster lookup and retrieval. You can specify the fields to be displayed when searching or browsing the file.

```
DEFINE FILES                                          TPH.DEFINE.FILE


    Data File Name: ABTEILUNG
  ┌Basic Info─────────────────────────────────────────────────────┐
  │1.File Description          ABTEILUNG                            │
  │2.Directory File?           N                                    │
  │3.Max Attributes             10                                  │
  │4.Add Next ID Button?       N                                    │
  │                                                                 │
  └─────────────────────────────────────────────────────────────┘


  ┌5.Index      ┐ ┌7.Browse    ┐ ┌9.Xref     ┐ ┌12.Calc    ┐ ┌14.Includes┐

     Index Name          Specification                   Options   Default?
6.1  ID                  ID
6.2  BESCHREIBUNG        BESCHREIBUNG.WORT                             Y
6.3
6.4
6.5



File  Edit  Delete  Step  Zoom  Next  Prev  Add  DelVal  Ins
Dict  Quit
File the item
```
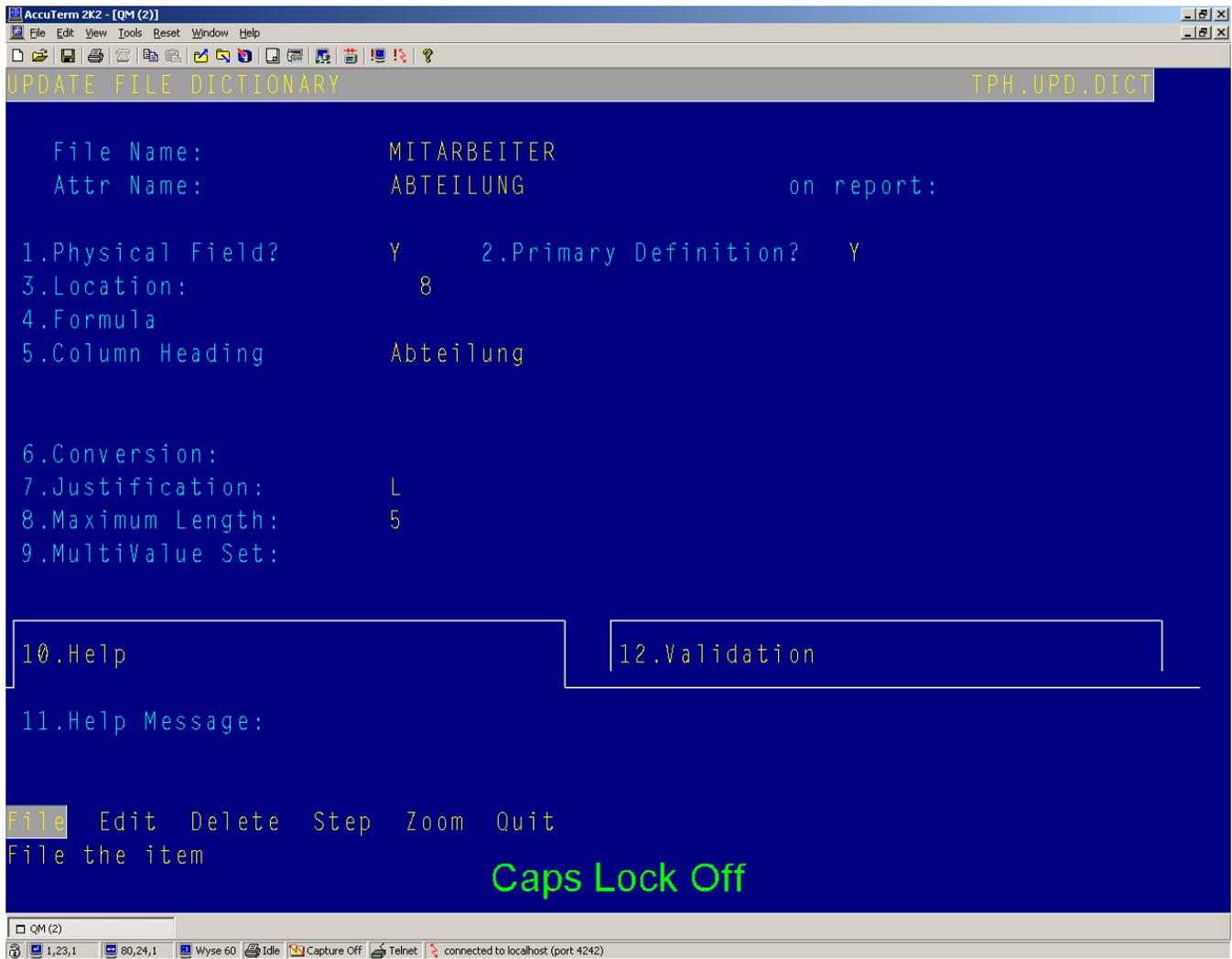
You can also use TPH to create dictionary definition for your file (though TPH will work fine with an existing file and dictionary). TPH maintains its own dictionary definitions and automatically converts them to the format appropriate for your platform (this is especially nice if you have to maintain your software on multiple MV platforms, such as QM and D3)

Since with any complex system there will be some "hand written" routines, TPH will generate an include item equating attribute names to their appropriate location is a record array

```
*INCLUDE
*File Equates for MITARBEITER
*
*09 OCT 05
*
********************************************************
DIM MITARBEITER.REC(20)
********************************************************
EQUATE MITARB.NAME                TO MITARBEITER.REC(1)
EQUATE MITARB.MONATE              TO MITARBEITER.REC(2)
EQUATE MITARB.BRUTTO              TO MITARBEITER.REC(3)
EQUATE MITARB.NETTO               TO MITARBEITER.REC(4)
EQUATE MITARB.STUNDEN             TO MITARBEITER.REC(5)
EQUATE MITARB.WOCHEN              TO MITARBEITER.REC(6)
EQUATE MITARB.SCHULE              TO MITARBEITER.REC(7)
EQUATE MITARB.ABTEILUNG           TO MITARBEITER.REC(8)
EQUATE MITARB.KOSTEN.STUNDEN      TO MITARBEITER.REC(9)
```

This helps insure that consist names are used across all your programs and subroutines. If you cannot use the standard record array names (usually because of existing code) TPH will generate a version that can be used with both dynamic and static arrays of any name, as well as READV and WRITEV type statements.

```
*INCLUDE
*File Equates for MITARBEITER (AMCS)
*
*09 OCT 05
*
*******************************************************
EQUATE MITARB.NAME.AMC                  TO 1
EQUATE MITARB.MONATE.AMC                TO 2
EQUATE MITARB.BRUTTO.AMC                TO 3
EQUATE MITARB.NETTO.AMC                 TO 4
EQUATE MITARB.STUNDEN.AMC               TO 5
EQUATE MITARB.WOCHEN.AMC                TO 6
EQUATE MITARB.SCHULE.AMC                TO 7
EQUATE MITARB.ABTEILUNG.AMC             TO 8
EQUATE MITARB.KOSTEN.STUNDEN.AMC        TO 9
```

The Data Entry Screen Tool lets you build both Green Screen and GUI style data entry screens quickly and easily. Data entry can be automatically validated in a number of ways:

- Numeric, Date and Time Validation
- Table Lookup (must match one of a fixed set of values)
- File Validation (must exist on another file)
- Pattern Match Validations
- Range Validations

Plus you can create your own validations and use them through your application.

All the generated programs are modular and can be called from one another. For example you can add a new customer "on the fly" while entering an order. Or make updates to an existing customer without leaving the order entry screen.

In addition you can customize the generated programs to include your own business logic and this customization will be applied whenever you change the program (say to add or remove a data entry field)

In most cases, the generator itself can be customized to match your existing conventions and standards, making it easier for your users to use the TPH generated screens. This is particularly important if you are converting screens to TPH one at a time.
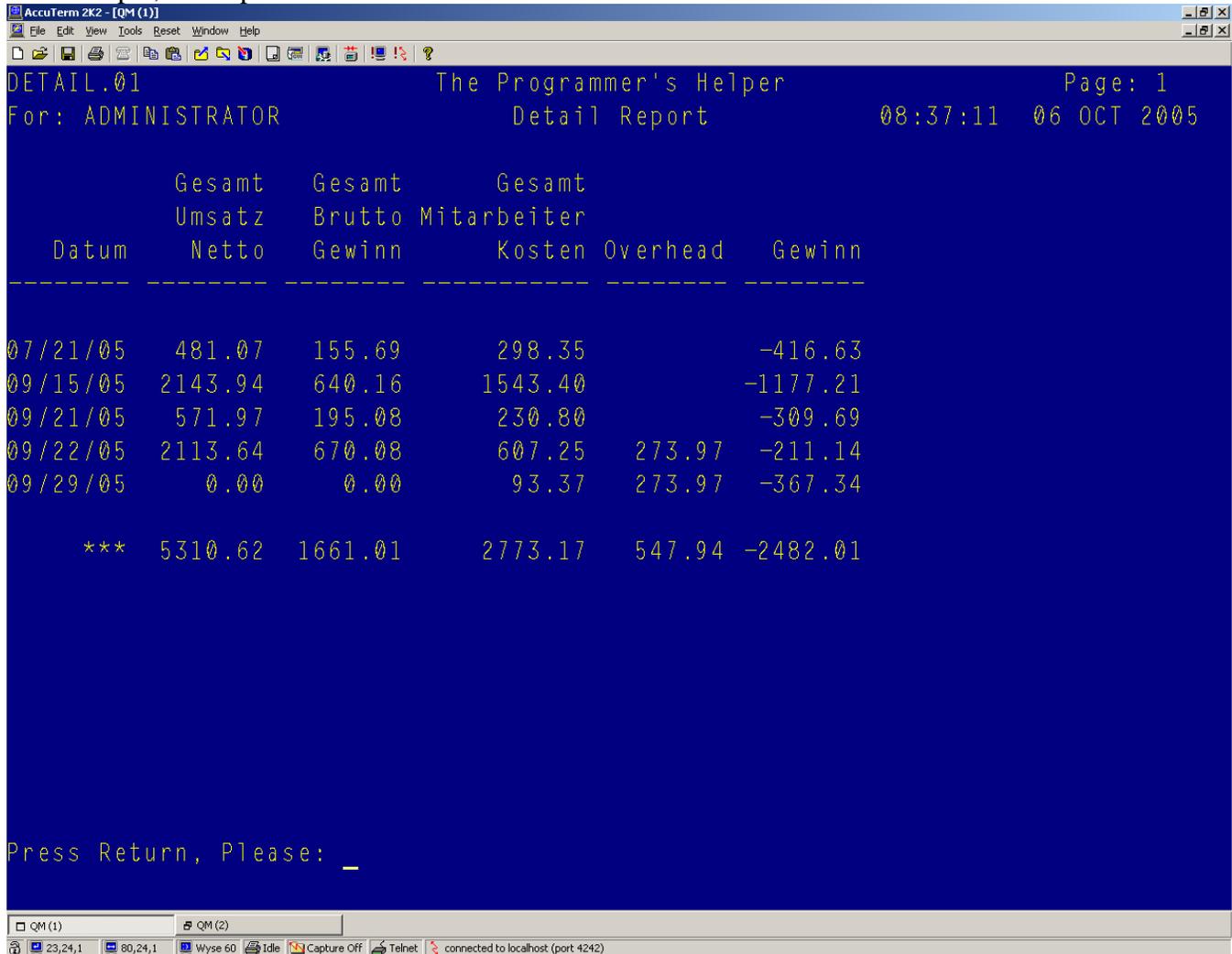
When building a GUI screen, TPH will replicate the Green Screen layout and then allow you to customize the look using the standard AccuTerm GUI Editor.

The Report Writing Tool lets you create both columnar and non-columnar ("forms") reports. Most simple reports will be built using the built in QM Query language. But often you need something a little

more complex and this tool will help you write those reports. Also, report output can be sent to a variety of devices and formats:

      Terminal
      System Printer
      Slave Printer
      Tab Delimited File
      HTML
      PDF (with optional 3rd party software)

For example, this report to the terminal

```
DETAIL.01                      The Programmer's Helper                          Page: 1
For: ADMINISTRATOR                      Detail Report               08:37:11   06 OCT 2005


              Gesamt      Gesamt       Gesamt
              Umsatz      Brutto    Mitarbeiter
    Datum     Netto       Gewinn        Kosten  Overhead      Gewinn
  --------   --------    --------    -----------  --------    --------


07/21/05     481.07      155.69        298.35                 -416.63
09/15/05    2143.94      640.16       1543.40                -1177.21
09/21/05     571.97      195.08        230.80                 -309.69
09/22/05    2113.64      670.08        607.25    273.97       -211.14
09/29/05       0.00        0.00         93.37    273.97       -367.34


    ***     5310.62     1661.01       2773.17    547.94     -2482.01
```

Press Return, Please: _

Can also be produced as a Tab Delimited File: (^009 is a tab)

```
0001:  Detail ReportDatum^009Gesamt Umsatz Netto^009Gesamt Brutto …
0002:  07/21/05^009481.07^009155.69^009298.35^009^009-416.63
0003:  09/15/05^0092143.94^009640.16^0091543.40^009^009-1177.21
0004:  09/21/05^009571.97^009195.08^009230.80^009^009-309.69
0005:  09/22/05^0092113.64^009670.08^009607.25^009273.97^009-211.14
0006:  09/29/05^0090.00^0090.00^00993.37^009273.97^009-367.34
0007:  ***^0095310.62^0091661.01^0092773.17^009547.94^009-2482.01
```

Or as an HTML document

The Menu Tool lets you create menus for your application, again in either Green Screen or GUI mode. Using the AccuTerm GUI editor you can customize the GUI mode menu (for example add logos or pictures).

For example, this Green Screen menu:

```
Menu: GASTRO                The Programmer's Helper              10-06-05
User: ADMINISTRATOR              GastroButler                    11:32:29
-------------------------------------------------------------------------




                        1.Datenerfassung

                        2.Auswertung

                        3.Mitarbeiter Verwaltung
                        4.Produkte Verwaltung
                        5.Abteiliung Verwalting

                        6.Parameter




            Enter Selection:
```

Can become this GUI Menu.