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ARM 9 changes since January 2013

Presentation is available at http://gdmdata.com/documents/ARM_9.1.1_to_9.1.5_Changes.pdf.

Tablet Data Collector update

ARM Tablet Data Collector began shipping in April 2013, using Lenovo ThinkPad Tablet 2 hardware. There were several configuration changes during the year based on user feedback. The current configurations are:

- Lenovo ThinkPad Tablet 2 with Griffin Survivor rugged case, 32 GB SD backup card, USB data transfer cable. For temperatures from 41°F to 95°F, 2 GB RAM, 64 GB drive, Intel[®] Atom[™] processor, 1 year hardware warranty, lower cost.
- Panasonic FZ-G1 with 32 GB SD backup card, USB data transfer cable, carrying case, Bluetooth GPS. For temperatures from 14°F to 122°F, 4 GB RAM, 128 GB drive, Intel® i5 processor, 4 foot drop resistance, IP65 certified (dustproof, very water resistant), 3 year hardware warranty, higher cost.

Choosing a tablet computer to use as a primary PC

Touchscreen tablet computers offer an easy portability, modest price, and convenience that is unmatched by traditional laptop or desktop computers. Unfortunately, many tablet computers are underpowered, with a screen that is too small to effectively manage the complex multi-document tasks involved with trial management and reporting. To use a tablet for typical PC desk work requires a tablet with:

- Windows 8 Professional.
- At minimum an Intel i5 processor with 4 GB of RAM memory and 128 GB SSD drive.
- A physical keyboard using an on-screen keyboard is only practical for "light" tasks.
- A mouse, trackball, or touchpad touch screens are nice, however fingers lack the precision to click on small command menus, or quickly select blocks of information to copy/paste between documents.
- An external monitor sized at least 23 inches the 10 or 11 inch monitor on most tablets is far too small a window onto complex email and document programs such as ARM, Excel, Outlook, and Word.
- A docking station to quickly connect and disconnect attached peripherals (keyboard, pointing device, monitor, network cable, etc.)
- Frequent data backups to a physically separate device (such as an external hard drive) or location (such as a cloud). The typical way of using tablets makes them very prone to damage and theft.
- Data security to protect confidential information. Define strong passwords, protect or encrypt confidential information, put tablet to sleep before walking away.

If considering purchase of an ARM Tablet Data Collector to use as a primary PC, only the Panasonic version meets recommended minimum hardware requirements. GDM only provides the Tablet Data Collector as a package of hardware plus software.

ARM 10 preview

Power and Efficiency calculator, to help plan experiments that can successfully detect expected treatment differences:

Protocol Settings							8 ×
General Design Treatment Application Layout							
Randomised Complete Block (RCB)	•	Power	and Efficien	ncy		° M D# 10 ▲	
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			6	00	10%	10	5
			8				8
			10				13
			12				18
			14				25
			Sav	ve as Default	Save Set	OK Cancel	Help

Calculate "power" of the planned trial to detect significant treatment differences based on:

- Expected CV = Coefficient of Variation of key assessments, such as yield of a cereal crop (obtain CV from AOV Means Table for comparable trials).
- Power = Level of certainty (80% or 90%) to detect true differences based on selected significance level.
- OSL = observed significance level to use, which is probability of a Type I error (a Type I error occurs when treatment means are declared to be significantly different when in fact there is no difference). Values supported by ARM are 1%, 5%, 10%, 15%, 20%, 25%, 30%, 40%, and 50%.
- % Mean Diff = desired accuracy of treatment effect expressed as percentage of the overall treatment mean. For example, to detect a 10% difference in control of pests, or a 5% crop yield difference.
- Reps = number of replications required to obtain the desired power.

Use "Lock at" to hold 3 or 4 columns constant, and leave "unlocked" the column (typically replicate or CV) for which you wish to determine possible values.

Copy study list map information to clipboard, to more easily create maps

🖳 Study List	_			
		Select study to open		
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•		4		< III
Select All Clear All	Remo	ove Filter	inho;	
Include archived studies	Tut	orial Copy a	all	
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Study ID, Latitude, and Longitude are copied to clipboard, and the BatchGeo website is automatically opened. Then:

- 1. Click on grid under the "Copy and then paste your location data below:" prompt.
- 2. Press <Delete> key to clear the example data.
- 3. Right-click and select Paste.
- 4. Click "Map Now" button.

Print Reports dialog enhancements for Report Options and Preview

Available Reports	Report Set
Signs Site Description Blank Fom Standard Fom Custom Fom Custom Fom Named View Selected Tabs Spray/Seeding Plan Status Report Summary Assessment Data Summary O(Magaz Table	Report options Report Preview Ist product amount totals Options Ist other settings Ist other settings Treatments Options Ist ingredients for pre-mixes Options Ist validation comments Fields To Print
AOV Means Table Factorial AOV Table Correlations Dose-Response Analysis Standardised Summary Tour Report Treatment LST Comments Trial Audit Trail Trial Comments Trial Map Trial Treatments	Multi-factor View Image: Factors and levels Image: From entered fields in the original protocol Image: From first occurrence of each factor and level in trial Image: Treatments Image: Both Tip: Open a study to enable all report options, since some report options are study-dependent.

- Set options for the current report directly on the Print Reports dialog. Select "Edit Report Options" only to change Global Report Settings, or options for a parent report (such as Summary options for AOV Means Table report).
- After selecting the Report Preview tab, the tab stays open so you can click different reports to have an "instant preview" of what the report looks like for the current study. Finding a desired label is now much faster!
- Print Reports automatically resizes according to current screen resolution, giving a larger view of Report Options and Print Preview on a higher resolution monitor.

	💀 New Protocol		23
💀 Protocol Settings			OK OK
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Herbicide			
Soybean Variety		-	
Save as Default Save Set OK	Cancel	Help	

Named settings on Settings window in protocols

Create named option sets using "Save Set" button, and select a named option set to use in either the New Protocol dialog, or General tab of Settings in a protocol.

Find possible outliers while reviewing assessment data

Use the new "Column Properties" tab in Assessment Editor to display information about each assessment data in each data column. It displays:

- Any currently defined minimum maximum data range
- Lowest and highest value in data column
- Description of transform applied to a data column
- Full descriptive statistics from AOV of data
- Any violations of AOV assumptions, with a "Fix" button to try solving the violation
- Tool to find Outliers based on several different methods to detect possible outliers, with a "Find Next" button to locate each outlier in the data column.



Assessment Data - Line 1												
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Pest Co	de					SEPT			Column ID: 5			
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Crop Na	ame					Winter wheat				Low/High value: 0.00 15.00		
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Sort data by any 'plot' experimental unit description column

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	1	3	3	4	304	5	0.00
		2			202		0.00

Click the column heading once to sort data in ascending order of values in that plot description column, such as Rep or Block. Click a second time to sort data in descending order.