



Malbank Detailed ICT Business Continuity and Recovery Plan

November 2023



Malbank Business Continuity and Recovery Plan

Introduction

The aim of the Business Continuity Plan for Malbank School and Sixth form College is an aim to maintain and recover from an emergency or disaster.

This will include scenarios addressed, e.g. loss of IT systems, loss of premises leading to no access to IT systems, loss of communications, loss of power, etc.

The plan will also include software and data recovery and the service users to ensure that, in an emergency, there is clarity regarding the critical services to be restored as a matter of priority, and what services it is technically possible to deliver.

To ensure that any necessary backup media is protected and accessible in the event of a significant physical disaster, e.g. off-site storage is sufficiently far away to be unaffected by the disaster and imposed by the emergency services.

This documentation will provide details of any equipment to be provided under a replacement contract should be critically reviewed and suitability assessed, e.g. capacity and software used etc.

Risk Management

There are many potential disruptive threats which can occur at any time and affect the normal business process. We have considered a wide range of potential threats and the results of our deliberations are included in this section. Each potential environmental disaster or emergency situation has been examined. The focus here is on the level of business disruption which could arise from each type of disaster.

Potential disasters have been assessed as follows:

Potential Disaster	Probability Rating	Impact Rating	Brief Description Of Potential Consequences & Remedial Actions
Flood	3	4	Could lose servers in S Block Rest on first floor in C block
Fire	3	4	Fire system controls in all buildings
Tornado	5		
Electrical storms	5		
Act of terrorism	5		
Act of sabotage	5		
Electrical power failure	3	4	Redundant UPS array will manage a shutdown of systems in orderly manor
Loss of Data	3	4	Loss of information till data restored
Server Failure	3	3	Loss of system till parts in fitted and system restored

Probability: 1=Very High, 5=Very Low

Impact: 1=Total destruction, 5=Minor annoyance

Malbank Domain

Global settings

Gateway: 10.0.100.156

Subnet Mask: 255.255.0.0

Primary DNS: 10.0.100.1

Secondary DNS: 10.0.100.2

MALBANK 1 10.0.100.1

Operating system: Windows Server 2022 Standard

Roles: Domain Controller, DHCP Server, DNS Server

MALBANK 2 10.0.100.2

Operating system: Windows Server 2022 Standard

Roles: Domain Controller, DNS Server

MALBANK 3 10.0.100.3

Operating system: Windows Server 2022 Standard

Roles: Windows Update Server, Office 365 Synchronisation, Sibelius license server

MALBANK 4 10.0.100.4

Operating system: Windows Server 2022 Standard

Roles: Student File Server, Application Server, Heritage Library Server

MALBANK 5 10.0.100.5

Operating system: Windows Server 2022 Standard

Roles: Staff File Server

MALBANK 6 10.0.100.6

Operating system: Windows Server 2022 Standard

Roles: SIMS, Exams

MALBANK 7 10.0.100.7

Operating system: Windows Server 2022 Standard

Roles: Print Server for local printers

MALBANK8 10.0.100.8

Operating system: Windows Server 2022 Standard

Roles: ABTutor license server, Telephone system link

MALBANK9 10.0.100.9

Operating system: Windows Server 2022 Standard

Roles: Developmental

MALBANK10 10.0.100.10

Operating system: Windows Server 2022 Standard

Roles: NesityData & Photocopiers

MB-HYPERV 10.0.100.18

Operating system: Windows Server 2019 Standard

Roles: Microsoft Hypervisor, provides storage and processing power for MBCCTV02

MB-RDS-BRK 10.0.100.16

Operating system: Windows Server 2022 Standard

Roles: Remote Apps Broker Server

MB-EXCH 10.0.100.13

Operating system: Windows Server 2019 Standard

Roles: Exchange 2019 Hybrid Office 365 Server

VCSA 10.0.100.67

Roles: VMWare Vcenter controller for 3 hosts

MALBANK0 10.0.100.100

Operating system: Windows Storage Server 2012 R2

Roles: Veeam Backup & Replication

MBCCTV01/MBCCTV02 10.0.210.1 10.0.210.2

Operating system: Windows 10 Pro

Roles: Blue Iris Camera Recording software

MB-RDS-GW 10.0.100.17

Operating system: Windows Server 2022 Standard

Roles: Remote Apps Gateway Server

MALBANKCASHLESS 10.0.106.1

Operating system: Windows Server 2022 Standard

Roles: Cashless Catering Server

MB-RDS1 10.0.100.14

Operating system: Windows Server 2022 Standard

Roles: Remote Apps Session Host

MB-RDS2 10.0.100.15

Operating system: Windows Server 2022 Standard

Roles: Remote Apps Session Host

MB-EPM 10.0.100.19

Operating system: Windows Server 2022 Standard

Roles: Management and Imaging of all workstations

SECONDARY BACKUP STORE 10.0.100.217

WASABI IMMUTABLE OFFSITE BACKUP CLOUD

Activity Ranking

Here is a table showing a list of every activity, the impact of not being able to deliver this and how critical it is that this activity is delivered within the different timescales stated below:

Activity	Impact
<p>M A L B A N K D O M A I N</p>	<p>If the Malbank domain was to fail then the School would lose all access to the network systems.</p> <p><u>MALBANK1</u> This Server is the main Domain Controller for the Malbank Forest Domain and is at the top of the forest with Malbank2. Malbank1 is one of two Domain Name Services (DNS) Server and also runs the Dynamic Host Configuration Protocol (DHCP) for the whole School. The main Global Catalogue is held on this Server and replicated out to Malbank2. If this server fails then DHCP would be lost which would mean that most of the Schools Laptops and PC's would be unable to get a Transmission Control Protocol/Internet Protocol. (TCP/IP) Address and would be unable to talk to any other computer on the network. Users would still be able to login if Malbank2 was available.</p> <p><u>MALBANK2</u> This Server is a second Domain Controller for the Malbank Forest Domain. A copy of the Domain Name Services (DNS) which runs on Malbank1 is copied to this Server along with a copy of the Global Catalogue which controls logins. If this server fails then the network would still be fully functional as Malbank1 has the same role if it was available.</p> <p><u>MALBANK3</u> This server controls windows updates and office 365 synchronization. It also handles license allocations for the music software Sibelius. If this server fails then the network would be fully functional however periodic windows updates, user and password synchronization between office 365 and our domain would also be affected as would access to the music software Sibelius.</p> <p><u>MALBANK4</u> This is the Student file server for the Malbank forest Domain. All student files, along with shared work and the heritage library system are run from this server. If this server fails then students would be unable to access their documents and the library system would also not function.</p> <p><u>MALBANK5</u> This is the Staff file server for the Malbank forest Domain. All staff files, profiles, along with Gendata and Staffwork are run from this server. If this server fails then staff would be unable to access their documents, profiles, gendata or staffwork file areas.</p> <p><u>MALBANK6</u> This is the SIMS MIS server for the Malbank forest Domain. If this server fails then the MIS would be unavailable which would also affect exams.</p> <p><u>MALBANK7</u> This is the main Print server for local printers for the Malbank forest Domain, If this server fails then users would be unable to print locally but would still have access to the photocopiers.</p> <p><u>MALBANK8</u> This is the ABTutor license server for the Malbank forest Domain and the link for the telephone system. If this server fails then users would be unable to use the telephones or ABTutor.</p>

MALBANK9 This is currently being used as a development server, if this server fails there would be no impact on the school.

MALBANK10 This is the Nesy data server and the Papercut photocopier management server for the Malbank forest domain. This server holds data for the Nesy Learning program and holds all the management controls for the photocopier system. If this server fails we would not have access to student work via Nesy and there would be no access to the photocopiers.

MB-RDS-BRK/MB-RDS-GW/MB-RDS1/MB-RDS2 These servers provide the remote apps services for the Malbank forest domain. Individually they all have separate roles to play but collectively all need to be working for these services to function correctly. MB-RDS-BRK carries out load balancing to determine which session host to log you on to based on current load (MB-RDS1/MB-RDS2) if the server fails then Remote apps will not work. MB-RDS-GW provides the secure link through to the MB-RDS-BRK server, user authentication happens here and it ensures that MB-RDS-BRK is protected from outside attacks through direct access. If MB-RDS-GW fails then authenticating onto the system for Remote app access would not be possible. MB-RDS1 and MB-RDS2 provide the desktop environment to which users can access apps. If just one fails users would still be able to login although performance may be affected because load balancing is no longer taking place.

MB-EXCH This server handles email communication between Office 365 in the cloud and our local user accounts, if this server was to fail it would only impact the ability to add any new users or edit any existing ones. It would not affect any current users.

MALBANKO This is the schools backup server. If this server fails then we would be unable to back up any of the data from the servers. The secondary backup location would also be affected because the secondary backup jobs also run from this server as would the cloud based immutable offsite backup.

VCSA This is the VMware controller server. This server acts as a tunnel so that we can administer and control our virtual servers. If this server fails the network would remain operational but we would be unable to manage any virtual machines, for example restarting, creating new servers etc.

MBCCTV01/MBCCTV02 These are the CCTV recording servers. If these servers fail then we would be unable to record any CCTV footage.

MALBANKCASHLESS This is the cashless catering management server. If this server fails then the cashless catering system would be unusable.

MB-HYPERV This server provides the processing power for MBCCTV02 and the storage capacity for both MBCCTV01 and MBCCTV02. If this server fails then CCTV recordings would not be possible.

MB-EPM This is the main management and imaging server for all workstations in the school. If this were to fail we would not be able to re-install any computers or deploy software to them remotely.

Server locations

MALBANK1 – SO4 (Virtual machine - Access from VSphere Web Client)
MALBANK2 – SO4 (Virtual machine - Access from VSphere Web Client)
MALBANK3 – SO4 (Virtual machine - Access from VSphere Web Client)
MALBANK4 – SO4 (Virtual machine - Access from VSphere Web Client)
MALBANK5 – SO4 (Virtual machine - Access from VSphere Web Client)
MALBANK6 – SO4 (Virtual machine - Access from VSphere Web Client)
MALBANK7 – SO4 (Virtual machine - Access from VSphere Web Client)
MALBANK8 – SO4 (Virtual machine - Access from VSphere Web Client)
MALBANK9 – SO4 (Virtual machine - Access from VSphere Web Client)
MALBANK10 – SO4 (Virtual machine - Access from VSphere Web Client)
MB-HYPERV – SO4 (Physical machine – Access from Hyper-V Manager)
MB-RDS-BRK – SO4 (Virtual machine - Access from VSphere Web Client)
MB-RDS-GW – SO4 (Virtual machine - Access from VSphere Web Client)
MB-EXCH – SO4 (Virtual machine - Access from VSphere Web Client)
MB-EPM – SO4 (Virtual machine – Access from Vsphere Web Client)
MB-RDS1 – SO4 (Physical machine)
MB-RDS2 – SO4 (Physical machine)
VCSA – SO4 (Virtual machine – Access from VSphere Web Client)
MALBANK0 – CT4 (Physical machine)
MALBANKCASHLESS – CT4 (Virtual machine – Access from VSphere Web Client)
MBCCTV01 – SO4 (Virtual machine – Access from VSphere Web Client)
MBCCTV02 – SO4 (Virtual machine – Access from Hyper-V Manager)
SECONDARY BACKUP STORE – Boulevard Gym (Physical Machine)

Other Equipment locations

Internet Router – A13

If this piece of equipment failed then the school would be without internet access, this would mean a loss of cloud based services such as Microsoft Teams/Emails/Internet access and our telephone system.

IP Addressing for All Domain PC's and Laptops

All Pc's and Laptop's on the Malbank Domain use Dynamic Host Configuration Protocol (DHCP) Addresses which they get from Malbank 1 which is the Schools DHCP Server this gives the said PC or Laptop a leased IP address which is renewed every day The DHCP Scope is set from 10.0.50.200 to 10.0.56.200

Malbank0 Backs up all of the servers mentioned above, a secondary backup store located in the Boulevard is also used to duplicate this information and there is also an immutable offsite backup store hosted by Autodata using Wasabi technology.

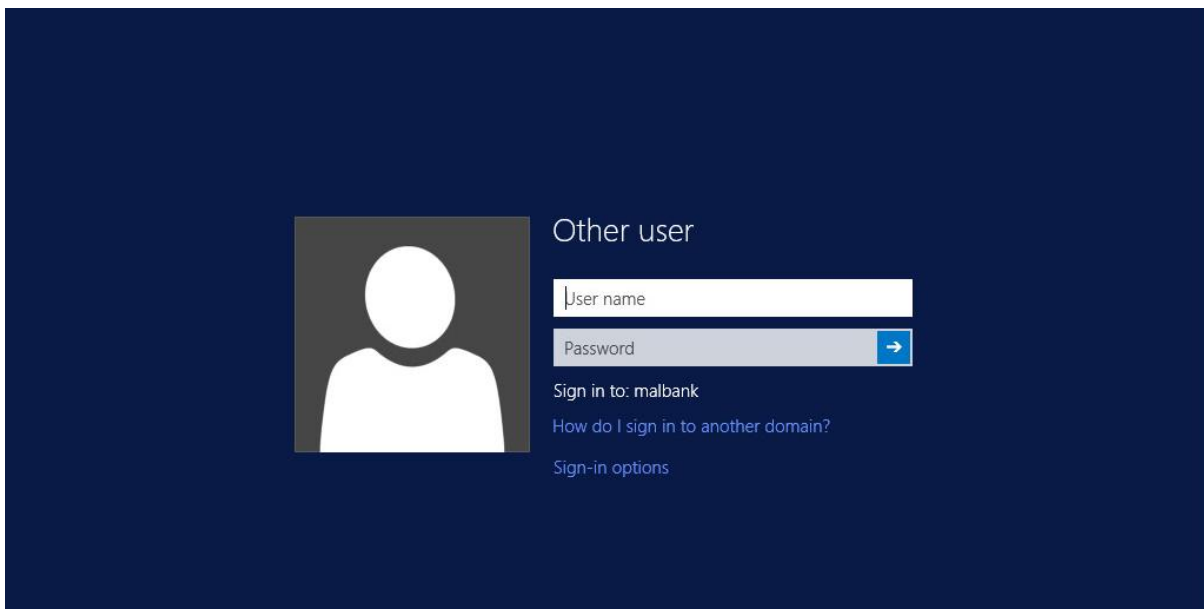
Malbank0 uses the latest version of Veeam Backup & Replication for VMWare environments which is an award-winning product using technology that has the following features:

- Recovery of failed VM in as little as 2 minutes

- Near-continuous data protection with built-in replication
- Fast, agentless item recovery and e-discovery for Microsoft Exchange, SharePoint and Active Directory, along with transaction-level recovery of SQL databases
- Lower RPOs and 20x faster backups with backup from HP and NetApp storage snapshots
- Automatic recoverability testing of every backup and every replica, every time
- Offsite backups 50x faster than standard file copy with built-in WAN acceleration
- Fast and secure cloud backups with Veeam Cloud Connect
- Deduplication and compression to minimize storage consumption
- Offsite recovery with 1-click site failover and support for facilitated data center migrations with zero data loss

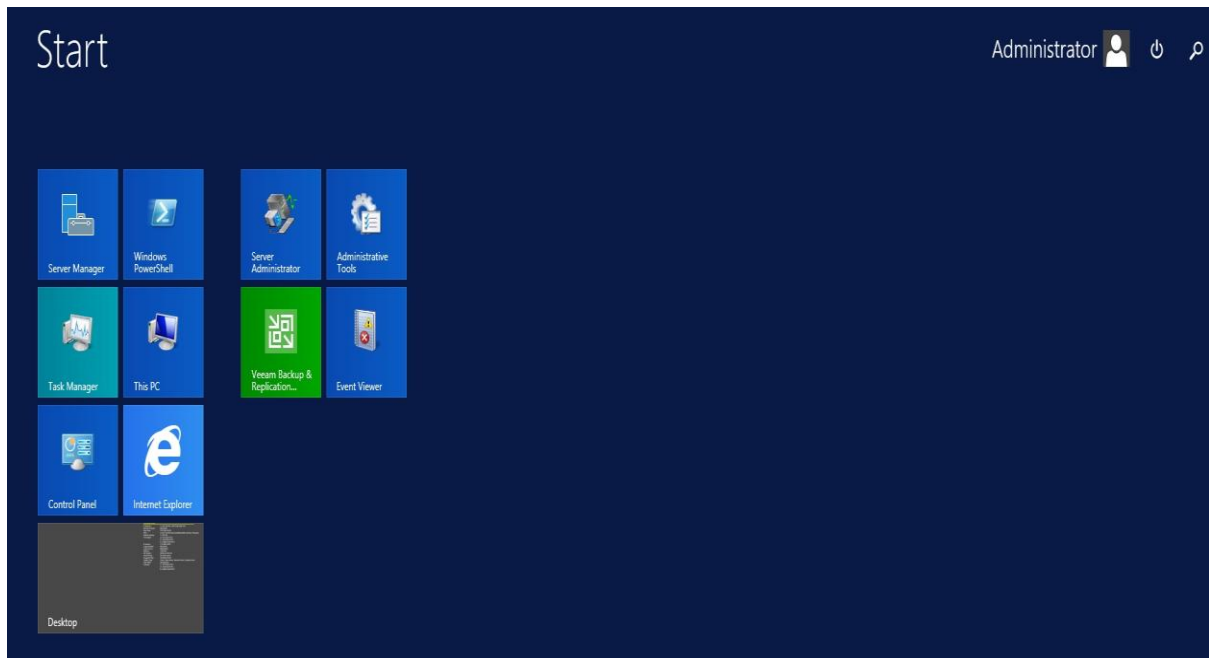
To access Veeam Backup & Replication Directly

Access to the backup server can be gained via the sixth form common room, the door is locked and only the ICT Team and Site Team have keys for this room. Upon entering there is a monitor, keyboard and mouse setup which is connected directly into the server.

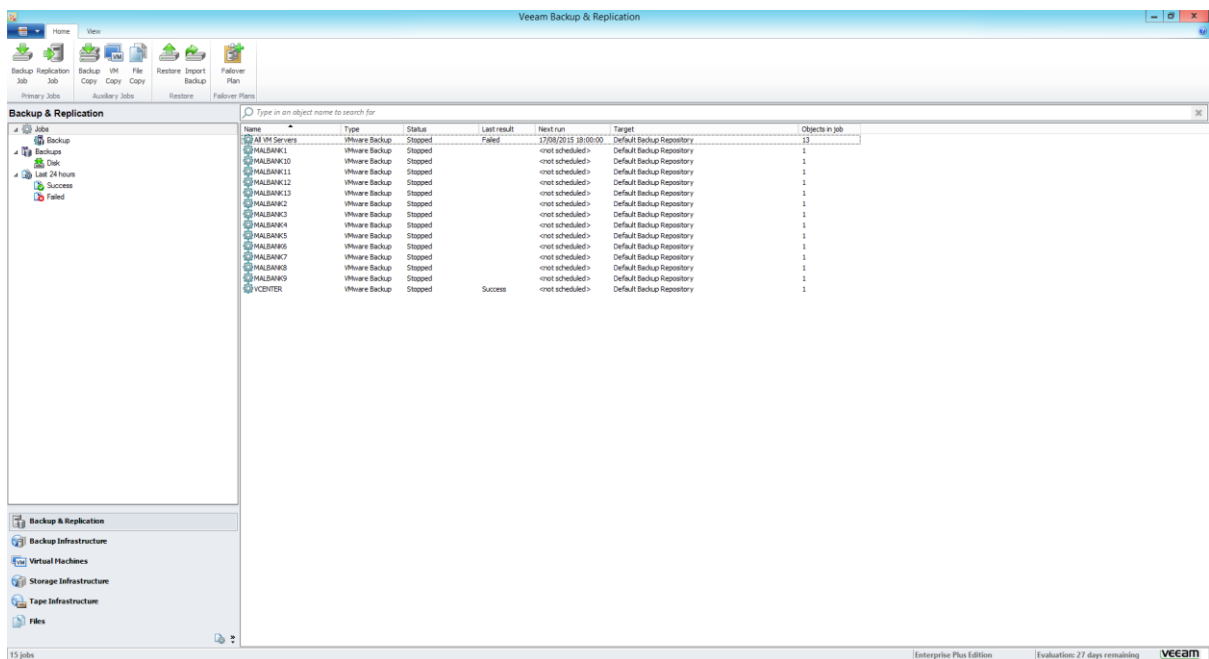


Login using a domain administrator username and password.

Once logged in click on the start button, bottom left to be taken to the start menu as shown below.

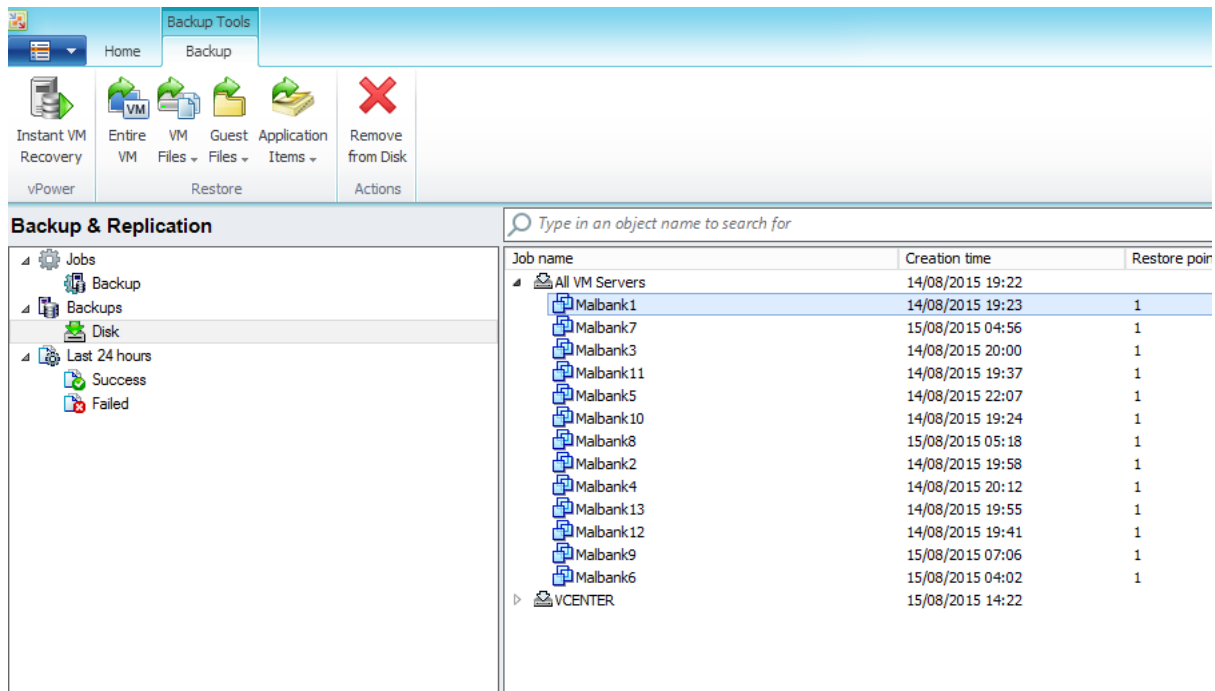


Once here click on the green tile titled “Veeam Backup & Replication” to open the software.



This screen will display all of the backup jobs that are currently scheduled on the server, it will also show last run status' including whether they were successful or whether they have failed. Email notifications are also sent to itsupport@malbank.cheshire.sch.uk so the ICT Team are always aware of the status of backup jobs and can act quickly if there are any issues.

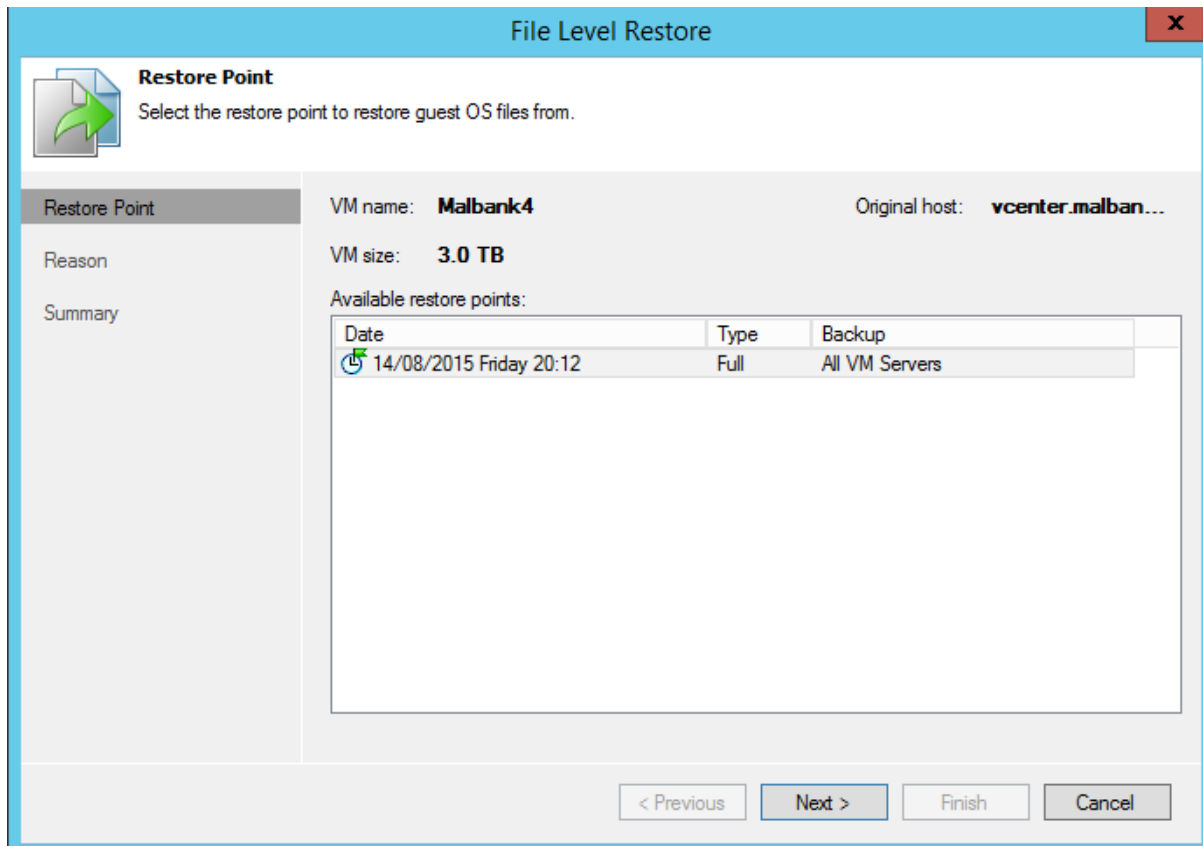
Restoring items is very simple, simply choose the server you wish to restore from and choose from the drop down list at the top of the screen as shown below.



At the top of the screen you have the choice of “Entire VM” which should only be used in the event that a server is completely unuseable, “VM Files” if there are files from the virtual machine image itself you may need to recover.

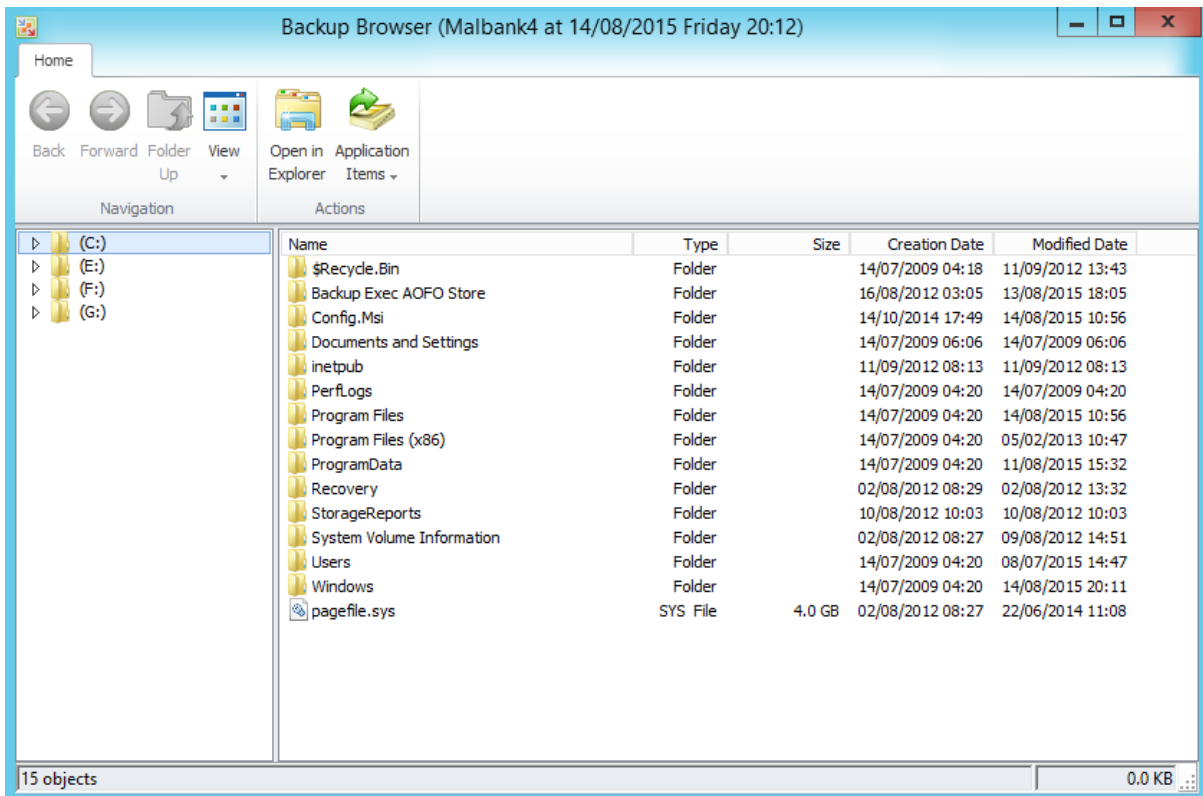
For most situations “Guest Files – Microsoft Windows” and “Application Items” is where most restores will be done from. Applications Items includes recoveries from services such as Microsoft Exchange, Active Directory and SQL Server Applications.

In the example below we wish to restore a powerpoint document from a student home directory, therefore we would select “Malbank4” our student file server, click on “Guest Files” and choose Microsoft Windows. This will trigger the screen below.

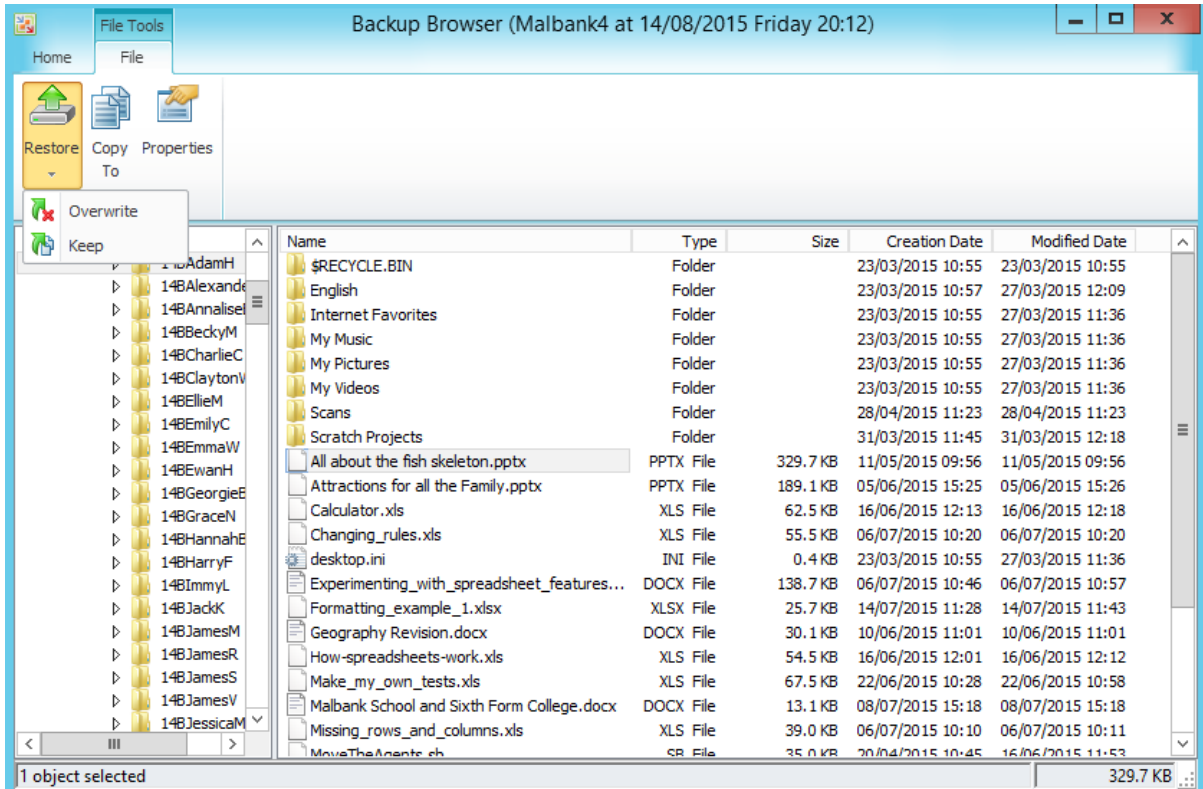


We can choose a restore point to restore from and then if we just click on next, next then finish to complete the request for a file level restore.

We will then see our backup browser window showing all of the drives on the server that we can restore from on the left hand side and all of the files available on the right hand side.



We can then select our file and choose to restore and either overwrite what is already on disk or keep what is on disk as shown below:



Veeam carries out a weekly backup test on a select few VMS using Surebackup. This involves booting the backed up VM into a virtual environment and carrying out a number of tests. This ensures the integrity of the full restore point. The VMs that have been selected are mission critical (MALBANK1,4,5,6,3, MP-EPM, MB-EXCH AND VCSA)

Backup Routine

The backup system completes a full backup 5 days of the week Mon-Fri. This data is stored on the main backup unit located in the 6th Form Block and copied to a separate unit located in the Boulevard as well as a weekly offsite immutable backup.

In addition to the backup routine "Shadow Copies" are taken daily at 7am and 12pm, shadow copies are snapshots of the most critical file storage areas that allow for quick one click restoration without the need to go through the main backup system.

Backup Retention

The backup system holds 30 restore points on disk which provides the school with around 1 month of full backups excluding the weekends after which time it begins to be overwritten. The offsite immutable backup is held for 7 days before being replaced.

Student Requests

Students in Y11, Y12 & Y13 have 6 months from the time they leave the school to request their work after which time it will be removed from the system. This request must be submitted in writing to the Strategic ICT Manager.

Changes to emails leaving the organisation

All emails are unencrypted unless users require them to be. All staff have been given instruction on how to encrypt emails if they need to which requires inserting SECURE: [SECURE] or (SECURE) into the subject line.

Cyber Security Measures

Our filtering policies are in check, we sit behind school's broadband's firewalls, so access is limited to only the services they have allowed, and we have requested. Our servers carry out automatic windows updates every 4th Friday. We use multi factor authentication for staff. We have anti-virus and anti-malware protection with protection against zero-day exploits. We carry out backups to three separate systems that have different administrator passwords. We utilise Anti-spam, anti-malware, and anti-phishing policies in Office 365. We upgrade our computers to the latest build of Windows on a yearly basis. We have systems in place to upgrade any Windows based product such as Office, Server, Windows in line with Microsoft product lifecycles to ensure that we are always using the latest and most secure products and never utilising something that is end of life and not receiving security updates.

New Telephone system 24th June

New telephone system to be installed Summer 2022, this service is dependent on the schools Internet connection being always online. If there is a problem with the connection, there would be a loss of service to the telephone system. Malbank8 is also required to be online.

List of Emergency Telephone Numbers

<u>Name</u>	<u>Position</u>	<u>Emergency Telephone No.</u>	<u>Mobile Telephone No.</u>
Mr J Harrison	Head Teacher	07577 575789	07577 575789
Mrs S Sproston	Strategic Business Manager	07739 004859	07739 004859
Mrs J Edwards	Deputy Head Teacher	07880 331186	07880 331186
Mr A Hunter	Strategic ICT Manager	07531 289529	07531 289529
Mr W Clough	Site Manager	01270 586284	07754 831242
TALK STRAIGHT	Schools' Broadband provider	0113 322 2333	

In the event of an emergency there is documentation kept in secure locations and these are as follows:

1. The offsite immutable backup is secured with backup keys, these are stored in an envelope in the top drawer of the filing cabinet in SO3. The key for the filing cabinet is in the key box in the same room.
2. The main domain administrator account password for the school network is stored in two separate locations – the top drawer of the filing cabinet in SO3 and in the main school safe in student services. This account is only to be used in a disaster recovery scenario. The Strategic ICT Manager, Senior Systems Engineer and Software Development and Installations Manager have their own administration account for day-to-day operations.