grass valley

Maestro

Multi-format Master Control

User Manual

Software Version 2.0

www.grassvalley.com

071848203
AUGUST 2009

Affiliate with the N.V. KEMA in The Netherlands

CERTIFICATE

Certificate Number: 510040.001
The Quality System of:

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Including its implementation, meets the requirements of the standard:

ISO 9001:2008

Scope:
The design, manufacture and support of video and audio hardware and software products and related systems.

This Certificate is valid until: June 14, 2012
This Certificate is valid as of: June 14, 2009
Certified for the first time: June 14, 2000

H. Pierre Sallé
President
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Grass Valley Web Site

The www.grassvalley.com web site offers the following:

Online User Documentation — Current versions of product catalogs, brochures, data sheets, ordering guides, planning guides, manuals, and release notes in .pdf format can be downloaded.

FAQ Database — Solutions to problems and troubleshooting efforts can be found by searching our Frequently Asked Questions (FAQ) database.

Software Downloads — Download software updates, drivers, and patches.

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END-OF-LIFE PRODUCT RECYCLING NOTICE

Grass Valley's innovation and excellence in product design also extends to the programs we've established to manage the recycling of our products. Grass Valley has developed a comprehensive end-of-life product take back program for recycle or disposal of end-of-life products. Our program meets the requirements of the European Union's WEEE Directive, the United States Environmental Protection Agency, and U.S. state and local agencies.

Grass Valley's end-of-life product take back program assures proper disposal by use of Best Available Technology. This program accepts any Grass Valley branded equipment. Upon request, a Certificate of Recycling or a Certificate of Destruction, depending on the ultimate disposition of the product, can be sent to the requester.

Grass Valley will be responsible for all costs associated with recycling and disposal, including freight. However, you are responsible for the removal of the equipment from your facility and packing the equipment to make it ready for pickup.

For further information on the Grass Valley product take back system please contact Grass Valley at + 800 80 80 20 20 or +33 1 48 25 20 20 from most other countries. In the U.S. and Canada please call 800-547-8949 or 530-478-4148, and ask to be connected to the EH&S Department. Additional information concerning the program can be found at: www.thomsongrassvalley.com/environment

THOMSON images & beyond

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Preface

About This Manual

This manual provides operating information specific to the Maestro Master Control System.

Additional Documentation

Printed and electronic copies of this manual and the Installation and Service manual are normally provided with the system. Individual manuals may be ordered by contacting Technical Support. For contact information, see page 2.

Automation programming is described in the Maestro Automation Interface Protocol Technical Reference Manual, 0718472xx. This manual is included on the documentation CD supplied with the system.

The Maestro system can be controlled by the Grass Valley Encore or Jupiter Control System. Configuration information for the control system itself is contained in the control system's documentation set:

Encore Control System Release Notes series, 0718153xx.
Encore Installation and Service Manual, 0718103xx.
Encore Control System User Manual, 0718104xx.

Jupiter Control System Release Notes series, 0718275xx.
Jupiter VM-3000 Installation and Operating Manual, 0718305xx.
Jupiter CM-4000 Installation and Operating Manual, 0718261xx.
Jupiter Getting Started Guide, 04-045707-003.

NetCentral IV TV Facility Monitoring System User Guide, 0718338xx

Electronic copies of other routing products documents are available on the following documentation CDs:

CD 0718130xx. Includes Encore, Jupiter VM-3000 and Jupiter CM-4000 Control System manuals.

These documents are also available on our web site. See page 2.

Regulatory Notices

Certifications and Compliances

FCC Emission Control

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by Grass Valley, Inc. can affect emission compliance and could void the user's authority to operate this equipment.

Canadian EMC Notice of Compliance

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'emet pas de bruits radioélectriques dépassant les limites applicables aux appareils numeriques de la classe A préscrites dans le Règlement sur le brouillage radioélectrique édicte par le ministère des Communications du Canada.

EN55022 Class A Warning

For products that comply with Class A. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Canadian Certified Power Cords

Canadian approval includes the products and power cords appropriate for use in the North America power network. All other power cords supplied are approved for the country of use.

Canadian Certified AC Adapter

Canadian approval includes the AC adapters appropriate for use in the North America power network. All other AC adapters supplied are approved for the country of use.

Laser Compliance

Laser Safety Requirements

The device used in this product is a Class 1 certified laser product. Operating this product outside specifications or altering from its original design may result in hazardous radiation exposure, and may be considered an act of modifying or new manufacturing of a laser product under U.S. regulations contained in 21CFR Chapter1, subchapter J or CENELEC regulations in HD 482 S1. People performing such an act are required by law to recertify and reidentify this product in accordance with provisions of 21CFR subchapter J for distribution within the U.S.A., and in accordance with CENELEC HD 482 S1 for distribution within countries using the IEC 825 standard.

Laser Safety

Laser safety in the United States is regulated by the Center for Devices and Radiological Health (CDRH). The laser safety regulations are published in the "Laser Product Performance Standard," Code of Federal Regulation (CFR), Title 21, Subchapter J.

The international Electrotechnical Commission (IEC) Standard 825, "Radiation of Laser Products, Equipment Classification, Requirements and User's Guide," governs laser products outside the United States. Europe and member nations of the European Free trade Association fall under the jurisdiction of the Comite European de Normalization Electrotechnique (CENELEC).

For the CDRH: The radiant power is detected trough a 7 mm aperture at a distance of 200 mm from the source focused through a lens with a focal length of 100 mm.

For IEC compliance: The radiant power is detected trough a 7 mm aperture at a distance of 100 mm from the source focused through a lens with a focal length of 100 mm.

FCC Emission Limits

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may no cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesirable operation. This device

has been tested and found to comply with FCC Part 15 Class B limits for a digital device when tested with a representative laser-based fiber optical system that complies with ANSI X3T11 Fiber Channel Standard.

Certification

Category	Standard	Designed/tested for compliance with:
Safety	UL1950	Safety of Information Technology Equipment, including Electrical Business Equipment (Second edition, 1993).
	IEC 950	Safety of Information Technology Equipment, including Electrical Business Equipment (Second edition, 1991).
	CAN/CSA C22.2, No. 950-93	Safety of Information Technology Equipment, including Electrical Business Equipment.
	EN60950	Safety of Information Technology Equipment, including Electrical Business Equipment.

Safety Summary

Read and follow the important safety information below, noting especially those instructions related to risk of fire, electric shock or injury to persons. Additional specific warnings not listed here may be found throughout the manual.

WARNING Any instructions in this manual that require opening the equipment cover or enclosure are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

Safety Terms and Symbols

Terms in This Manual

Safety-related statements may appear in this manual in the following form:

WARNING Warning statements identify conditions or practices that may result in personal injury or loss of life.

CAUTION Caution statements identify conditions or practices that may result in damage to equipment or other property, or which may cause equipment crucial to your business environment to become temporarily non-operational.

Terms on the Product

The following terms may appear on the product:

DANGER — A personal injury hazard is immediately accessible as you read the marking.

WARNING — A personal injury hazard exists but is not immediately accessible as you read the marking.

CAUTION — A hazard to property, product, and other equipment is present.

Symbols on the Product

The following symbols may appear on the product:

Indicates that dangerous high voltage is present within the equipment enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

Indicates that user, operator or service technician should refer to product manual(s) for important operating, maintenance, or service instructions.

This is a prompt to note fuse rating when replacing fuse(s). The fuse referenced in the text must be replaced with one having the ratings indicated.

Identifies a protective grounding terminal which must be connected to earth ground prior to making any other equipment connections.

Identifies an external protective grounding terminal which may be connected to earth ground as a supplement to an internal grounding terminal.

Indicates that static sensitive components are present which may be damaged by electrostatic discharge. Use anti-static procedures, equipment and surfaces during servicing.

Warnings

The following warning statements identify conditions or practices that can result in personal injury or loss of life:

Dangerous voltage or current may be present — Disconnect power and remove battery (if applicable) before removing protective panels, soldering, or replacing components.

Do not service alone — Do not internally service this product unless another person capable of rendering first aid and resuscitation is present.

Remove jewelry — Prior to servicing, remove jewelry such as rings, watches, and other metallic objects.

Avoid exposed circuitry — Do not touch exposed connections, components or circuitry when power is present.

Use proper power cord — Use only the power cord supplied or specified for this product.

Ground product — Connect the grounding conductor of the power cord to earth ground.

Operate only with covers and enclosure panels in place — Do not operate this product when covers or enclosure panels are removed.

Use correct fuse — Use only the fuse type and rating specified for this product.

Use only in dry environment — Do not operate in wet or damp conditions.

Use only in non-explosive environment — Do not operate this product in an explosive atmosphere.

High leakage current may be present — Earth connection of product is essential before connecting power.

Dual power supplies may be present — Be certain to plug each power supply cord into a separate branch circuit employing a separate service ground. Disconnect both power supply cords prior to servicing.

Double pole neutral fusing — Disconnect mains power prior to servicing.

Use proper lift points — Do not use door latches to lift or move equipment.

Avoid mechanical hazards — Allow all rotating devices to come to a stop before servicing.

Cautions

The following caution statements identify conditions or practices that can result in damage to equipment or other property:

Use correct power source — Do not operate this product from a power source that applies more than the voltage specified for the product.

Use correct voltage setting — If this product lacks auto-ranging power supplies, before applying power ensure that the each power supply is set to match the power source.

Provide proper ventilation — To prevent product overheating, provide equipment ventilation in accordance with installation instructions.

Use anti-static procedures — Static sensitive components are present which may be damaged by electrostatic discharge. Use anti-static procedures, equipment and surfaces during servicing.

Do not operate with suspected equipment failure — If you suspect product damage or equipment failure, have the equipment inspected by qualified service personnel.

Ensure mains disconnect — If mains switch is not provided, the power cord(s) of this equipment provide the means of disconnection. The socket outlet must be installed near the equipment and must be easily accessible. Verify that all mains power is disconnected before installing or removing power supplies and/or options.

Route cable properly — Route power cords and other cables so that they ar not likely to be damaged. Properly support heavy cable bundles to avoid connector damage.

Use correct power supply cords — Power cords for this equipment, if provided, meet all North American electrical codes. Operation of this equipment at voltages exceeding 130 VAC requires power supply cords which comply with NEMA configurations. International power cords, if provided, have the approval of the country of use.

Use correct replacement battery — This product may contain batteries. To reduce the risk of explosion, check polarity and replace only with the same or equivalent type recommended by manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Troubleshoot only to board level — Circuit boards in this product are densely populated with surface mount technology (SMT) components and application specific integrated circuits (ASICS). As a result, circuit board repair at the component level is very difficult in the field, if not impossible. For warranty compliance, do not troubleshoot systems beyond the board level.

Sicherheit – Überblick

Lesen und befolgen Sie die wichtigen Sicherheitsinformationen dieses Abschnitts. Beachten Sie insbesondere die Anweisungen bezüglich Brand-, Stromschlag- und Verletzungsgefahren. Weitere spezifische, hier nicht aufgeführte Warnungen finden Sie im gesamten Handbuch.

WARNUNG Alle Anweisungen in diesem Handbuch, die das Abnehmen der Geräteabdeckung oder des Gerätegehäuses erfordern, dürfen nur von qualifiziertem Servicepersonal ausgeführt werden. Um die Stromschlaggefahr zu verringern, führen Sie keine Wartungsarbeiten außer den in den Bedienungsanleitungen genannten Arbeiten aus, es sei denn, Sie besitzen die entsprechende Qualifikationen für diese Arbeiten.

Sicherheit – Begriffe und Symbole

In diesem Handbuch verwendete Begriffe

Sicherheitsrelevante Hinweise können in diesem Handbuch in der folgenden Form auftauchen:

WARNUNG Warnungen weisen auf Situationen oder Vorgehensweisen hin, die Verletzungs- oder Lebensgefahr bergen.

VORSICHT Vorsichtshinweise weisen auf Situationen oder Vorgehensweisen hin, die zu Schäden an Ausrüstungskomponenten oder anderen Gegenständen oder zum zeitweisen Ausfall wichtiger Komponenten in der Arbeitsumgebung führen können.

Hinweise am Produkt

Die folgenden Hinweise können sich am Produkt befinden:

GEFAHR — Wenn Sie diesen Begriff lesen, besteht ein unmittelbares Verletzungsrisiko.

WARNUNG — Wenn Sie diesen Begriff lesen, besteht ein mittelbares Verletzungsrisiko.

VORSICHT — Es besteht ein Risiko für Objekte in der Umgebung, den Mixer selbst oder andere Ausrüstungskomponenten.

Symbole am Produkt

Die folgenden Symbole können sich am Produkt befinden:

Weist auf eine gefährliche Hochspannung im Gerätegehäuse hin, die stark genug sein kann, um eine Stromschlaggefahr darzustellen.

Weist darauf hin, dass der Benutzer, Bediener oder Servicetechniker wichtige Bedienungs-, Wartungs- oder Serviceanweisungen in den Produkthandbüchern lesen sollte.

Dies ist eine Aufforderung, beim Wechsel von Sicherungen auf deren Nennwert zu achten. Die im Text angegebene Sicherung muss durch eine Sicherung ersetzt werden, die die angegebenen Nennwerte besitzt.

Weist auf eine Schutzerdungsklemme hin, die mit dem Erdungskontakt verbunden werden muss, bevor weitere Ausrüstungskomponenten angeschlossen werden.

Weist auf eine externe Schutzerdungsklemme hin, die als Ergänzung zu einem internen Erdungskontakt an die Erde angeschlossen werden kann.

Weist darauf hin, dass es statisch empfindliche Komponenten gibt, die durch eine elektrostatische Entladung beschädigt werden können. Verwenden Sie antistatische Prozeduren, Ausrüstung und Oberflächen während der Wartung.

Warnungen

Die folgenden Warnungen weisen auf Bedingungen oder Vorgehensweisen hin, die Verletzungs- oder Lebensgefahr bergen:

Gefährliche Spannungen oder Ströme — Schalten Sie den Strom ab, und entfernen Sie ggf. die Batterie, bevor sie Schutzabdeckungen abnehmen, löten oder Komponenten austauschen.

Servicearbeiten nicht alleine ausführen — Führen Sie interne Servicearbeiten nur aus, wenn eine weitere Person anwesend ist, die erste Hilfe leisten und Wiederbelebungsmaßnahmen einleiten kann.

Schmuck abnehmen — Legen Sie vor Servicearbeiten Schmuck wie Ringe, Uhren und andere metallische Objekte ab.

Keine offen liegenden Leiter berühren — Berühren Sie bei eingeschalteter Stromzufuhr keine offen liegenden Leitungen, Komponenten oder Schaltungen.

Richtiges Netzkabel verwenden — Verwenden Sie nur das mitgelieferte Netzkabel oder ein Netzkabel, das den Spezifikationen für dieses Produkt entspricht.

Gerät erden — Schließen Sie den Erdleiter des Netzkabels an den Erdungskontakt an.

Gerät nur mit angebrachten Abdeckungen und Gehäuseseiten betreiben — Schalten Sie dieses Gerät nicht ein, wenn die Abdeckungen oder Gehäuseseiten entfernt wurden.

Richtige Sicherung verwenden — Verwenden Sie nur Sicherungen, deren Typ und Nennwert den Spezifikationen für dieses Produkt entsprechen.

Gerät nur in trockener Umgebung verwenden — Betreiben Sie das Gerät nicht in nassen oder feuchten Umgebungen.

Gerät nur verwenden, wenn keine Explosionsgefahr besteht — Verwenden Sie dieses Produkt nur in Umgebungen, in denen keinerlei Explosionsgefahr besteht.

Hohe Kriechströme — Das Gerät muss vor dem Einschalten unbedingt geerdet werden.

Doppelte Spannungsversorgung kann vorhanden sein — Schließen Sie die beiden Anschlußkabel an getrennte Stromkreise an. Vor Servicearbeiten sind beide Anschlußkabel vom Netz zu trennen.

Zweipolige, neutrale Sicherung — Schalten Sie den Netzstrom ab, bevor Sie mit den Servicearbeiten beginnen.

Fassen Sie das Gerät beim Transport richtig an — Halten Sie das Gerät beim Transport nicht an Türen oder anderen beweglichen Teilen fest.

Gefahr durch mechanische Teile — Warten Sie, bis der Lüfter vollständig zum Halt gekommen ist, bevor Sie mit den Servicearbeiten beginnen.

Vorsicht

Die folgenden Vorsichtshinweise weisen auf Bedingungen oder Vorgehensweisen hin, die zu Schäden an Ausrüstungskomponenten oder anderen Gegenständen führen können:

Gerät nicht öffnen — Durch das unbefugte Öffnen wird die Garantie ungültig.

Richtige Spannungsquelle verwenden — Betreiben Sie das Gerät nicht an einer Spannungsquelle, die eine höhere Spannung liefert als in den Spezifikationen für dieses Produkt angegeben.

Gerät ausreichend belüften — Um eine Überhitzung des Geräts zu vermeiden, müssen die Ausrüstungskomponenten entsprechend den Installationsanweisungen belüftet werden. Legen Sie kein Papier unter das Gerät. Es könnte die Belüftung behindern. Platzieren Sie das Gerät auf einer ebenen Oberfläche.

Antistatische Vorkehrungen treffen — Es gibt statisch empfindliche Komponenten, die durch eine elektrostatische Entladung beschädigt werden können. Verwenden Sie antistatische Prozeduren, Ausrüstung und Oberflächen während der Wartung.

CF-Karte nicht mit einem PC verwenden — Die CF-Karte ist speziell formatiert. Die auf der CF-Karte gespeicherte Software könnte gelöscht werden.

Gerät nicht bei eventuellem Ausrüstungsfehler betreiben — Wenn Sie einen Produktschaden oder Ausrüstungsfehler vermuten, lassen Sie die Komponente von einem qualifizierten Servicetechniker untersuchen.

Kabel richtig verlegen — Verlegen Sie Netzkabel und andere Kabel so, dass Sie nicht beschädigt werden. Stützen Sie schwere Kabelbündel ordnungsgemäß ab, damit die Anschlüsse nicht beschädigt werden.

Richtige Netzkabel verwenden — Wenn Netzkabel mitgeliefert wurden, erfüllen diese alle nationalen elektrischen Normen. Der Betrieb dieses Geräts mit Spannungen über 130 V AC erfordert Netzkabel, die NEMA-Konfigurationen entsprechen. Wenn internationale Netzkabel mitgeliefert wurden, sind diese für das Verwendungsland zugelassen.

Richtige Ersatzbatterie verwenden — Dieses Gerät enthält eine Batterie. Um die Explosionsgefahr zu verringern, prüfen Sie die Polarität und tauschen die Batterie nur gegen eine Batterie desselben Typs oder eines gleichwertigen, vom Hersteller empfohlenen Typs aus. Entsorgen Sie gebrauchte Batterien entsprechend den Anweisungen des Batterieherstellers.

Das Gerät enthält keine Teile, die vom Benutzer gewartet werden können. Wenden Sie sich bei Problemen bitte an den nächsten Händler.

Consignes de sécurité

Il est recommandé de lire, de bien comprendre et surtout de respecter les informations relatives à la sécurité qui sont exposées ci-après, notamment les consignes destinées à prévenir les risques d'incendie, les décharges électriques et les blessures aux personnes. Les avertissements complémentaires, qui ne sont pas nécessairement repris ci-dessous, mais présents dans toutes les sections du manuel, sont également à prendre en considération.

AVERTISSEMENT **Toutes les instructions présentes dans ce manuel qui concernent l'ouverture des capots ou des logements de cet équipement sont destinées exclusivement à des membres qualifiés du personnel de maintenance. Afin de diminuer les risques de décharges électriques, ne procédez à aucune intervention d'entretien autre que celles contenues dans le manuel de l'utilisateur, à moins que vous ne soyez habilité pour le faire.**

Consignes et symboles de sécurité

Termes utilisés dans ce manuel

Les consignes de sécurité présentées dans ce manuel peuvent apparaître sous les formes suivantes:

AVERTISSEMENT **Les avertissements signalent des conditions ou des pratiques susceptibles d'occasionner des blessures graves, voire même fatales.**

ATTENTION Les mises en garde signalent des conditions ou des pratiques susceptibles d'occasionner un endommagement à l'équipement ou aux installations, ou de rendre l'équipement temporairement non opérationnel, ce qui peut porter préjudice à vos activités.

Signalétique apposée sur le produit

La signalétique suivante peut être apposée sur le produit:

DANGER — risque de danger imminent pour l'utilisateur.

AVERTISSEMENT — Risque de danger non imminent pour l'utilisateur.

MISE EN GARDE — Risque d'endommagement du produit, des installations ou des autres équipements.

Symboles apposés sur le produit

Les symboles suivants peut être apposés sur le produit:

Signale la présence d'une tension élevée et dangereuse dans le boîtier de l'équipement ; cette tension peut être suffisante pour constituer un risque de décharge électrique.

Signale que l'utilisateur, l'opérateur ou le technicien de maintenance doit faire référence au(x) manuel(s) pour prendre connaissance des instructions d'utilisation, de maintenance ou d'entretien.

Il s'agit d'une invite à prendre note du calibre du fusible lors du remplacement de ce dernier. Le fusible auquel il est fait référence dans le texte doit être remplacé par un fusible du même calibre.

Identifie une borne de protection de mise à la masse qui doit être raccordée correctement avant de procéder au raccordement des autres équipements.

Identifie une borne de protection de mise à la masse qui peut être connectée en tant que borne de mise à la masse supplémentaire.

Signale la présence de composants sensibles à l'électricité statique et qui sont susceptibles d'être endommagés par une décharge électrostatique. Utilisez des procédures, des équipements et des surfaces antistatiques durant les interventions d'entretien.

Avertissements

Les avertissements suivants signalent des conditions ou des pratiques susceptibles d'occasionner des blessures graves, voire même fatales:

Présence possible de tensions ou de courants dangereux — Mettez hors tension, débranchez et retirez la pile (le cas échéant) avant de déposer les couvercles de protection, de défaire une soudure ou de remplacer des composants.

Ne procédez pas seul à une intervention d'entretien — Ne réalisez pas une intervention d'entretien interne sur ce produit si une personne n'est pas présente pour fournir les premiers soins en cas d'accident.

Retirez tous vos bijoux — Avant de procéder à une intervention d'entretien, retirez tous vos bijoux, notamment les bagues, la montre ou tout autre objet métallique.

Évitez tout contact avec les circuits exposés — Évitez tout contact avec les connexions, les composants ou les circuits exposés s'ils sont sous tension.

Utilisez le cordon d'alimentation approprié — Utilisez exclusivement le cordon d'alimentation fourni avec ce produit ou spécifié pour ce produit.

Raccordez le produit à la masse — Raccordez le conducteur de masse du cordon d'alimentation à la borne de masse de la prise secteur.

Utilisez le produit lorsque les couvercles et les capots sont en place — N'utilisez pas ce produit si les couvercles et les capots sont déposés.

Utilisez le bon fusible — Utilisez exclusivement un fusible du type et du calibre spécifiés pour ce produit.

Utilisez ce produit exclusivement dans un environnement sec — N'utilisez pas ce produit dans un environnement humide.

Utilisez ce produit exclusivement dans un environnement non explosible — N'utilisez pas ce produit dans un environnement dont l'atmosphère est explosible.

Présence possible de courants de fuite — Un raccordement à la masse est indispensable avant la mise sous tension.

Deux alimentations peuvent être présentes dans l'équipement — Assurez vous que chaque cordon d'alimentation est raccordé à des circuits de terre séparés. Débranchez les deux cordons d'alimentation avant toute intervention.

Fusion neutre bipolaire — Débranchez l'alimentation principale avant de procéder à une intervention d'entretien.

Utilisez les points de levage appropriés — Ne pas utiliser les verrous de la porte pour lever ou déplacer l'équipement.

Évitez les dangers mécaniques — Laissez le ventilateur s'arrêter avant de procéder à une intervention d'entretien.

Mises en garde

Les mises en garde suivantes signalent les conditions et les pratiques susceptibles d'occasionner des endommagements à l'équipement et aux installations:

N'ouvrez pas l'appareil — Toute ouverture prohibée de l'appareil aura pour effet d'annuler la garantie.

Utilisez la source d'alimentation adéquate — Ne branchez pas ce produit à une source d'alimentation qui utilise une tension supérieure à la tension nominale spécifiée pour ce produit.

Assurez une ventilation adéquate — Pour éviter toute surchauffe du produit, assurez une ventilation de l'équipement conformément aux instructions d'installation. Ne déposez aucun document sous l'appareil — ils peuvent gêner la ventilation. Placez l'appareil sur une surface plane.

Utilisez des procédures antistatiques - Les composants sensibles à l'électricité statique présents dans l'équipement sont susceptibles d'être endommagés par une décharge électrostatique. Utilisez des procédures, des équipements et des surfaces antistatiques durant les interventions d'entretien.

N'utilisez pas la carte CF avec un PC — La carte CF a été spécialement formatée. Le logiciel enregistré sur la carte CF risque d'être effacé.

N'utilisez pas l'équipement si un dysfonctionnement est suspecté — Si vous suspectez un dysfonctionnement du produit, faites inspecter celui-ci par un membre qualifié du personnel d'entretien.

Acheminez les câbles correctement — Acheminez les câbles d'alimentation et les autres câbles de manière à ce qu'ils ne risquent pas d'être endommagés. Supportez correctement les enroulements de câbles afin de ne pas endommager les connecteurs.

Utilisez les cordons d'alimentation adéquats — Les cordons d'alimentation de cet équipement, s'ils sont fournis, satisfont aux exigences de toutes les réglementations régionales. L'utilisation de cet équipement à des tensions dépassant les 130 V en c.a. requiert des cordons d'alimentation qui satisfont aux exigences des configurations NEMA. Les cordons internationaux, s'ils sont fournis, ont reçu l'approbation du pays dans lequel l'équipement est utilisé.

Utilisez une pile de remplacement adéquate — Ce produit renferme une pile. Pour réduire le risque d'explosion, vérifiez la polarité et ne remplacez la pile que par une pile du même type, recommandée par le fabricant. Mettez les piles usagées au rebut conformément aux instructions du fabricant des piles.

Cette unité ne contient aucune partie qui peut faire l'objet d'un entretien par l'utilisateur. Si un problème survient, veuillez contacter votre distributeur local.

Section 1

System Overview

The Maestro master control switcher is a multi-channel, digital video and audio switching system designed for network and broadcast master control room applications.

Note All Maestro processors connected to the same Maestro deployment PC and comprising a single system (all processors interconnected via the same facility and control LANs) must have the same software version and configuration deployed to them. Having different software versions/configurations deployed within a single system is not supported and may result in communication incompatibilities and system failure.

System Features

- Multiple-channel, multiple control panel operation
- A/B/C/D Inputs from Encore- or Jupiter-controlled matrix router.
- Mix and match with Concerto router boards in same frame
- 4 external key cut/ fill inputs; linear/self key; border/shadow key
- Outputs: Program, Preview, 2 Clean Feed video. 1 Clean Feed audio
- 16 channel audio processing for embedded and MADI I/O expansion. 8 channel AES/EBU I/O included on rear panel.
- 4 audio mixers for MADI I/O expansion and future branding option audio overs. 2 AES/EBU inputs included on rear panel
- Embedded/MADI audio: up to 16 channels
- Dolby E pass-through
- Each audio source can be “derived” automatically (up/down converted), with programmable gain control on every audio channel. For example:
  - A stereo source can be configured to up-mix to a Dolby 5.1 output

    - A Dolby 5.1 source can be configured to down-mix to a left/right stereo pair
- Automation, GUI, and hardware panel control
- Source tally (“GPIO tally”) for Encore and Jupiter controlled systems
- DVE option
- Branding option (in development)

Primary On-air Transitions

- Cut-fade, fade-cut, V-fade (U-fade), cross-fade, wipe
- Configurable transition timing/type/rate
- Configured independent video/audio transitions
- Key inputs can be inserted “upstream” (paired with the background video) or “downstream” (operated independently from background video)
- Two independent 8-channel audio overs (Four 16-channel audio overs are available if a Sonata AES-to-MADI converter is used for audio overs).

Figure 1. Single-Channel HD Maestro, Encore Controller, Concerto Router

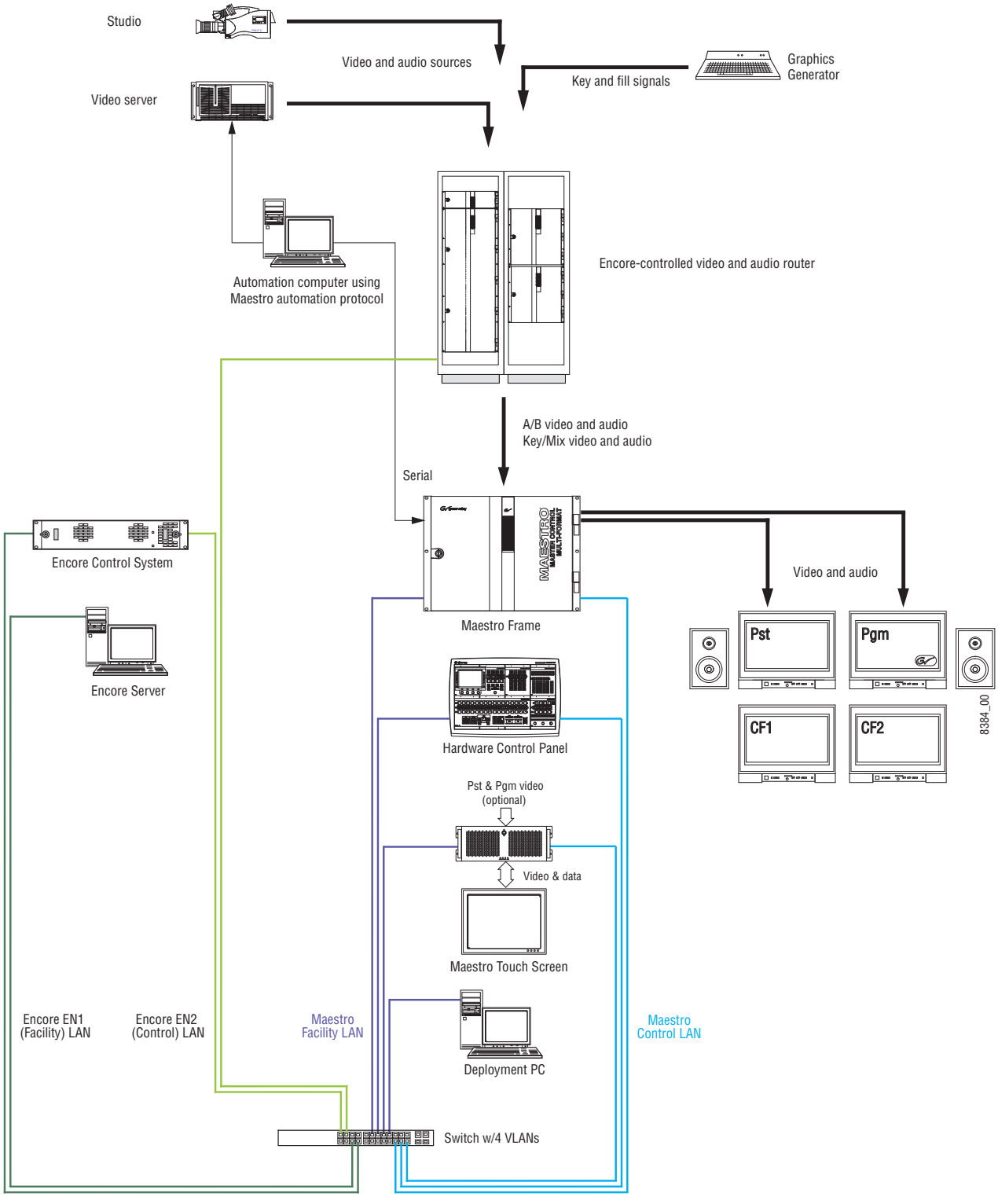
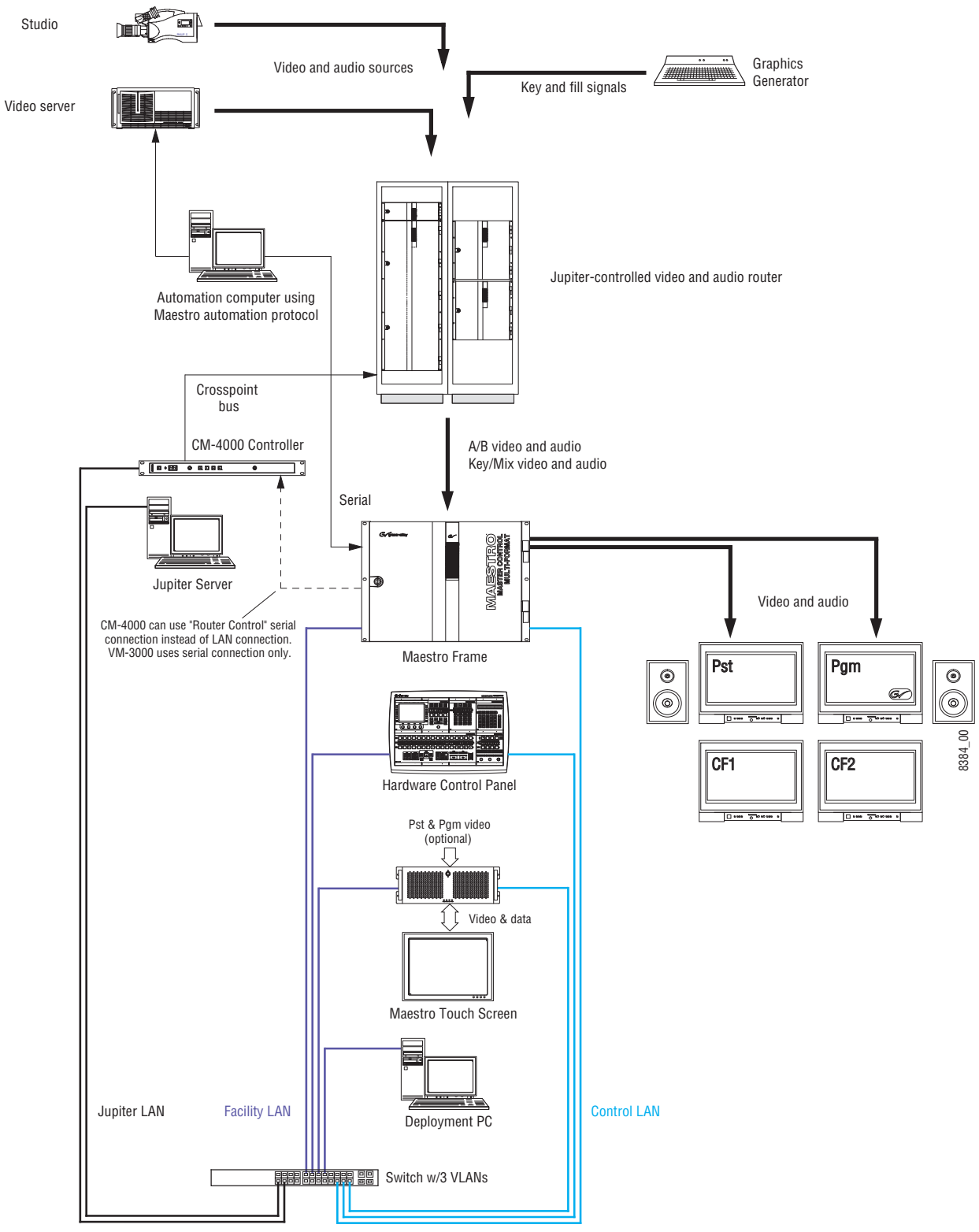


Figure 2. Single-channel HD Maestro, Jupiter CM-4000 Controller, Trinix/Apex Router



Major Components

Maestro hardware components consist of 1) a Maestro/Concerto+ rack mount frame, 2) Maestro circuit boards and rear panels, and 3) a control panel. The control panel may include a hardware control panel, a GUI control panel, or both; however, at least one control panel is recommended regardless of how many channels are in a Maestro system. A Windows PC is used for software installation, configuration, and update.

Maestro/Concerto Frames

Maestro/Concerto frames contain one or more Maestro Main (Processor) boards, which may be configured for standard definition (SD) or high definition (HD) operation. Each Processor board provides one "channel" consisting of one video and eight AES audio channels (e.g., four stereo pairs) or up to 16 embedded audio channels.

Note Up to 16 AES audio channels per video source are supported with external AES-to-MADI conversion.

The Maestro system must be used with a router controlled by a Grass Valley router control system (e.g., using Encore as shown in Figure 1 or Jupiter as shown in Figure 2).

If a Grass Valley Concerto router is used, and depending on system size, the Concerto boards may be mounted in the Maestro/Concerto frame.

The following Maestro/Concerto frames are available:

8 RU Maestro/Concerto frame (MAE-FRM128)

This frame, which is also known as the "Concerto Plus" frame, accepts a total of four Maestro/Concerto boards in any combination.

4 RU M/C frame (CRS-FRM64)

This frame, which is also known as the "Concerto 64" frame, accepts 1 Concerto board plus 1 Maestro SD or Maestro HD Processor board. If present, the Maestro board must be mounted in the bottom slot.

Note The original 7 RU Concerto rack frame is similar to the 8 RU Maestro/Concerto frame, but due to power and space limitations is not recommended for Maestro systems.

8 RU M/C Frame

The 8 RU frame, shown in Figure 3, accepts a total of four Maestro/Concerto boards in any combination. This example shows two Maestro channels: both are video + 75 ohm audio.

Figure 3. 8 RU Maestro/Concerto Frame with Two Maestro Channels

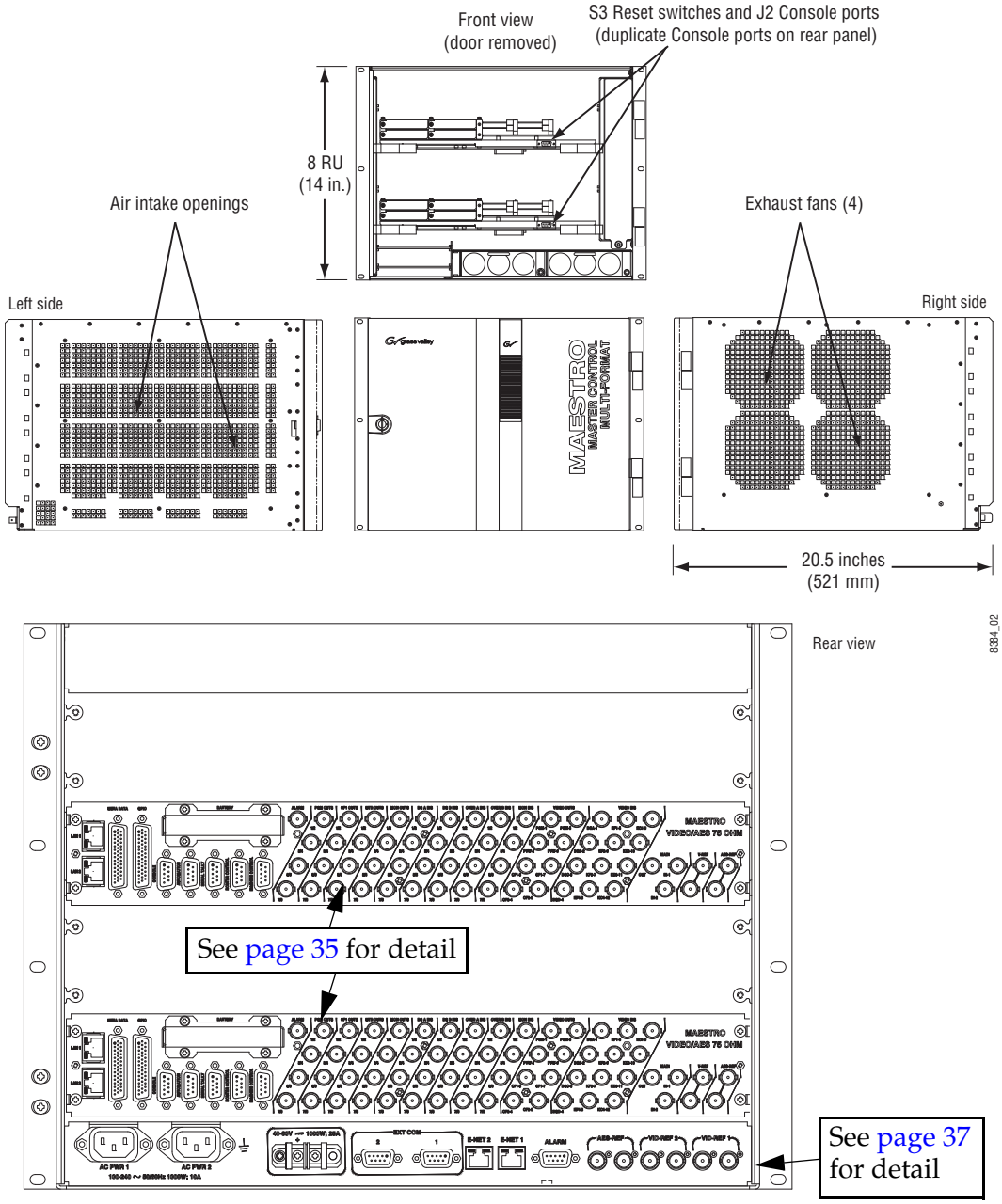
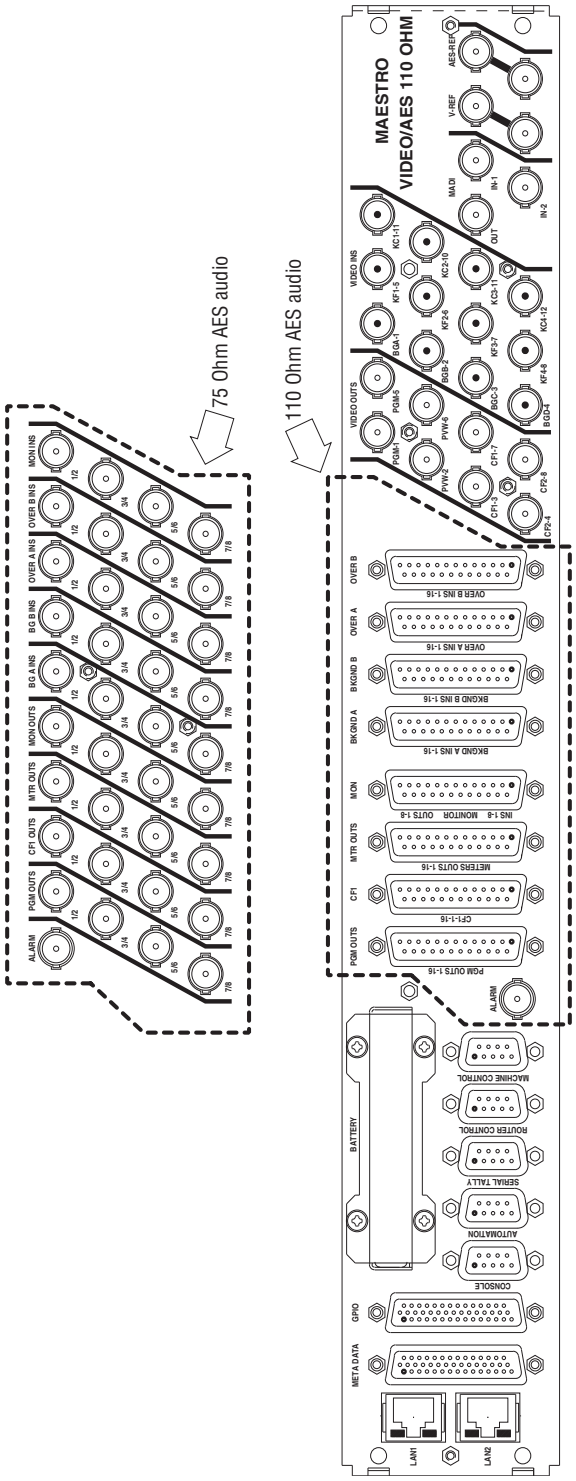
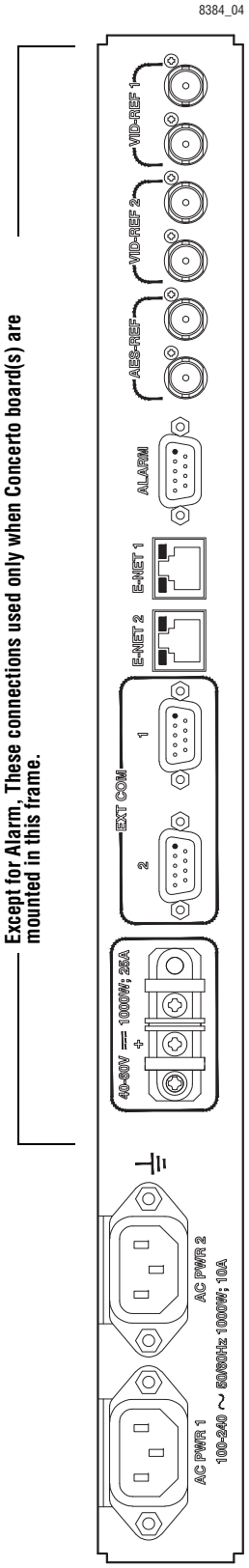


Figure 4. Maestro Rear Panel, Showing 75- and 110-Ohm Audio Variants



Note The Metering Output (MTR OUTS) connection is used to connect an optional third-party meter. This third-party meter would be used only if you prefer to view the PGM output on a different meter than the one that is part of the control panel.

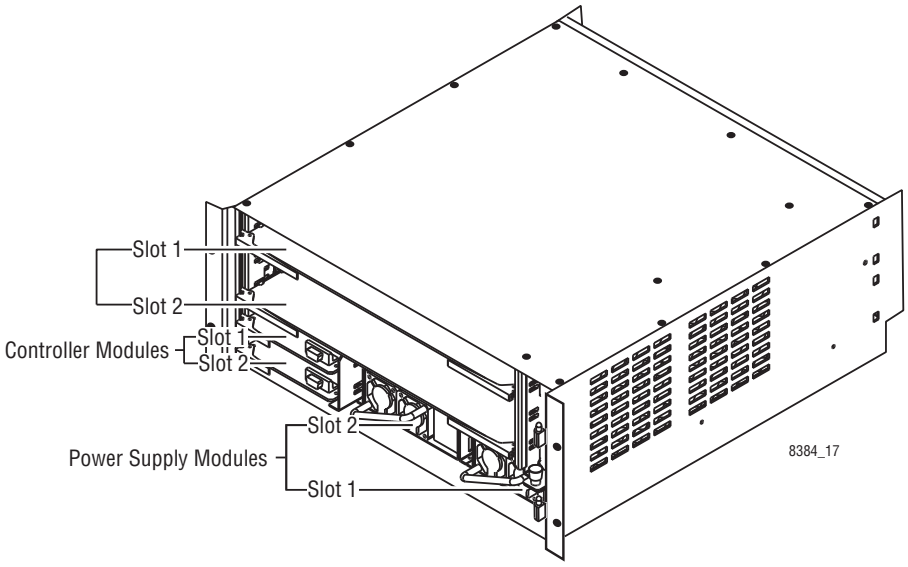
Figure 5. 8 RU Maestro/Concerto Frame Rear Panel



4 RU M/C frame

The 4 RU M/C frame has only one Maestro board. The Maestro board must be mounted in bottom slot (Slot 2) only.

Figure 6. 4 RU M/C Frame



Automation Interface

In many applications, the Maestro will be controlled by a third-party automation computer connected to the Automation port. The automation computer must send commands as described in the Maestro automation protocol manual, part no. 0718472xx. For more information, contact Grass Valley Technical Support.

The current Maestro automation protocol manual can be found at

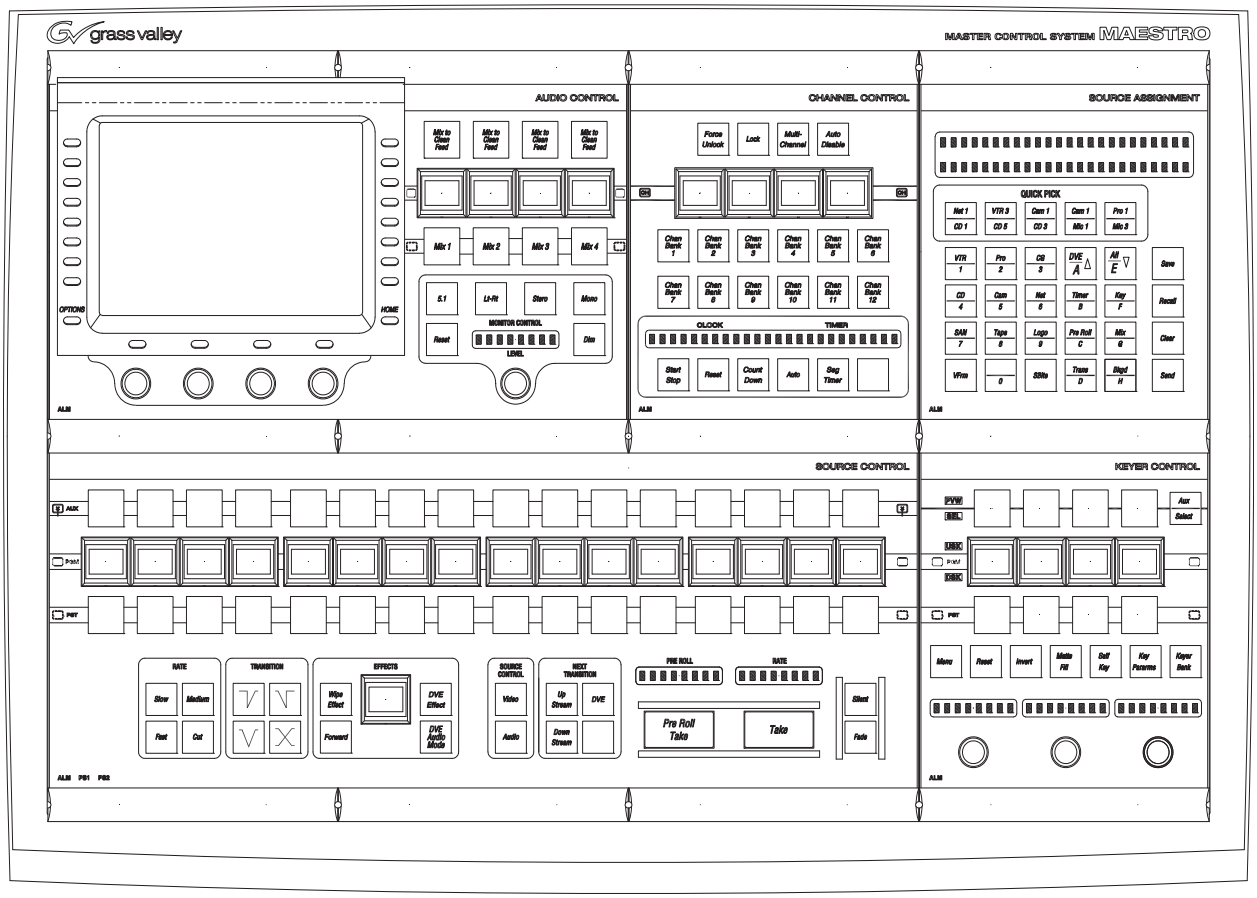
http://www.grassvalley.com/products/mcontrol/maestro/ on the Manuals page.

Hardware Control Panel

Maestro hardware control panels are available in two standard versions: the MAE-4X2STD-CP (shown in Figure 7) and the MAE-5X2STD-CP.

The MAE-5X2STD-CP provides space for a second MAE-KEY-CP Keyer Control Sub Panel (described below) or other optional sub panels which may be developed in the future.

Figure 7. MAE-4X2STD-CP Hardware Control Panel

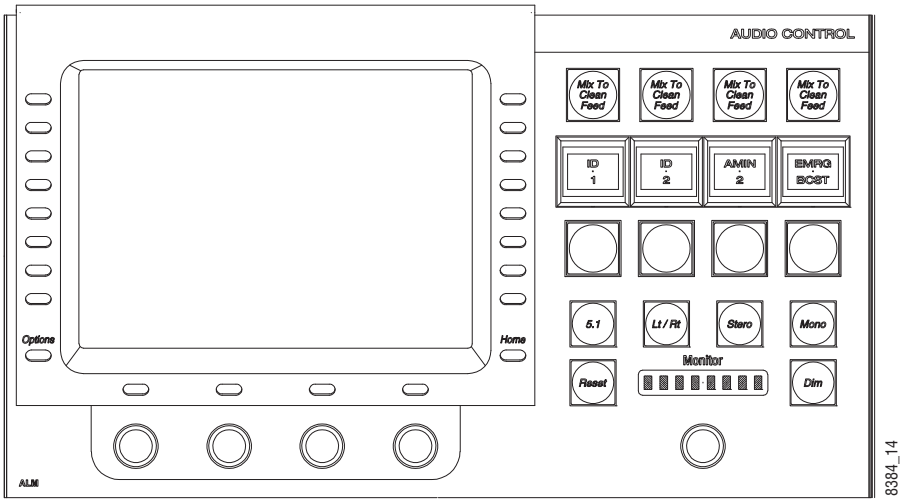


The hardware control panel can be used to select video and audio sources for live transmission. The panel can be used for manual intervention in systems normally controlled by an automation computer, or as the primary on-air control device.

Machine control commands must currently be provided by the facility router control system (Encore, Jupiter, etc.) or by the automation computer.

MAE-AUD2-CP Audio Control Sub Panel

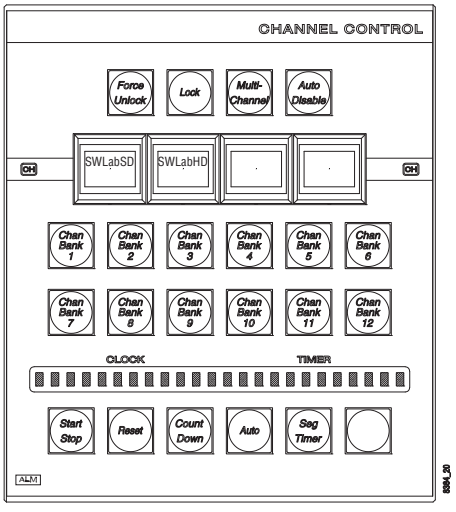
Figure 8.



This panel switches the four audio mixers in/out of the audio signal, sets audio levels for each source, selects and adjusts the level of audio signals for monitoring on the control room speakers, and performs channel remapping and other audio functions.

MAE-CHN-CP Channel Control Sub Panel

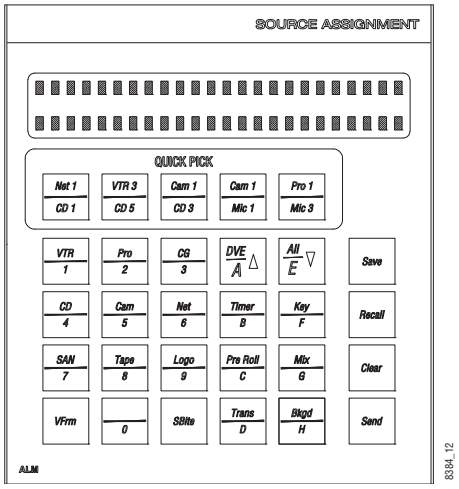
Figure 9.



This module is used to select the Maestro channel to be controlled from this panel. Enabling and disabling automation control for a particular channel is also done from this panel. On late-model control panels, the clock/timer displays and associated controls are also included.

MAE-ASN-CP Source Assignment Control Sub Panel

Figure 10.



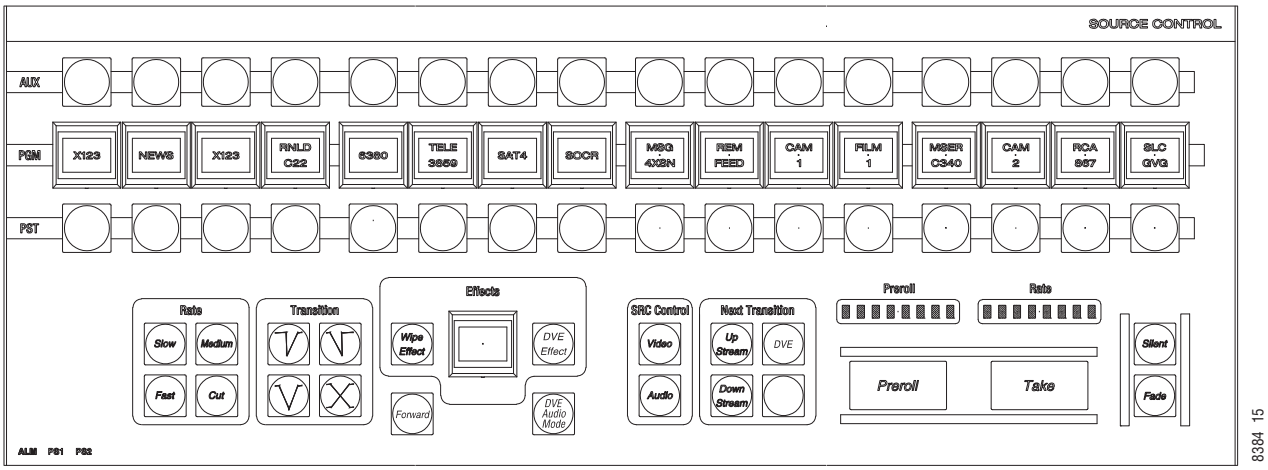
This module is used to assign router outputs to the 16 input positions in the Source Control Main Panel; assign Key signals to the four positions on the Keyer module; and assign audio over/under mix signals to the four positions in the Audio module.

This sub panel is also used to perform the following functions:

- Set a user-defined transition rate or timer value
- Save and recall background button, keyer and audio mix over source assignments
- Recall configured independent transitions

MAE-SRC-CP Source Control Sub Panel

Figure 11.



This sub panel is used to select the next source on the Preset bus and "Take" the source to Program (Air).

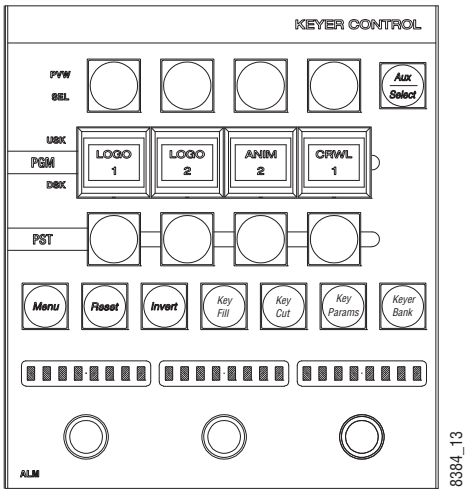
The AUX bus is used to select a second source for the DVE option.

The panel is also used to:

- Select transition speed and type,
- Select wipe effects
- Select digital video effects
- Create audio or video breakaways
- Select any combination of upstream, downstream or DVE transition operations
- Perform emergency actions such as fade to silence or fade to black (matte)

MAE-KEY-CP Keyer Control Sub Panel

Figure 12.



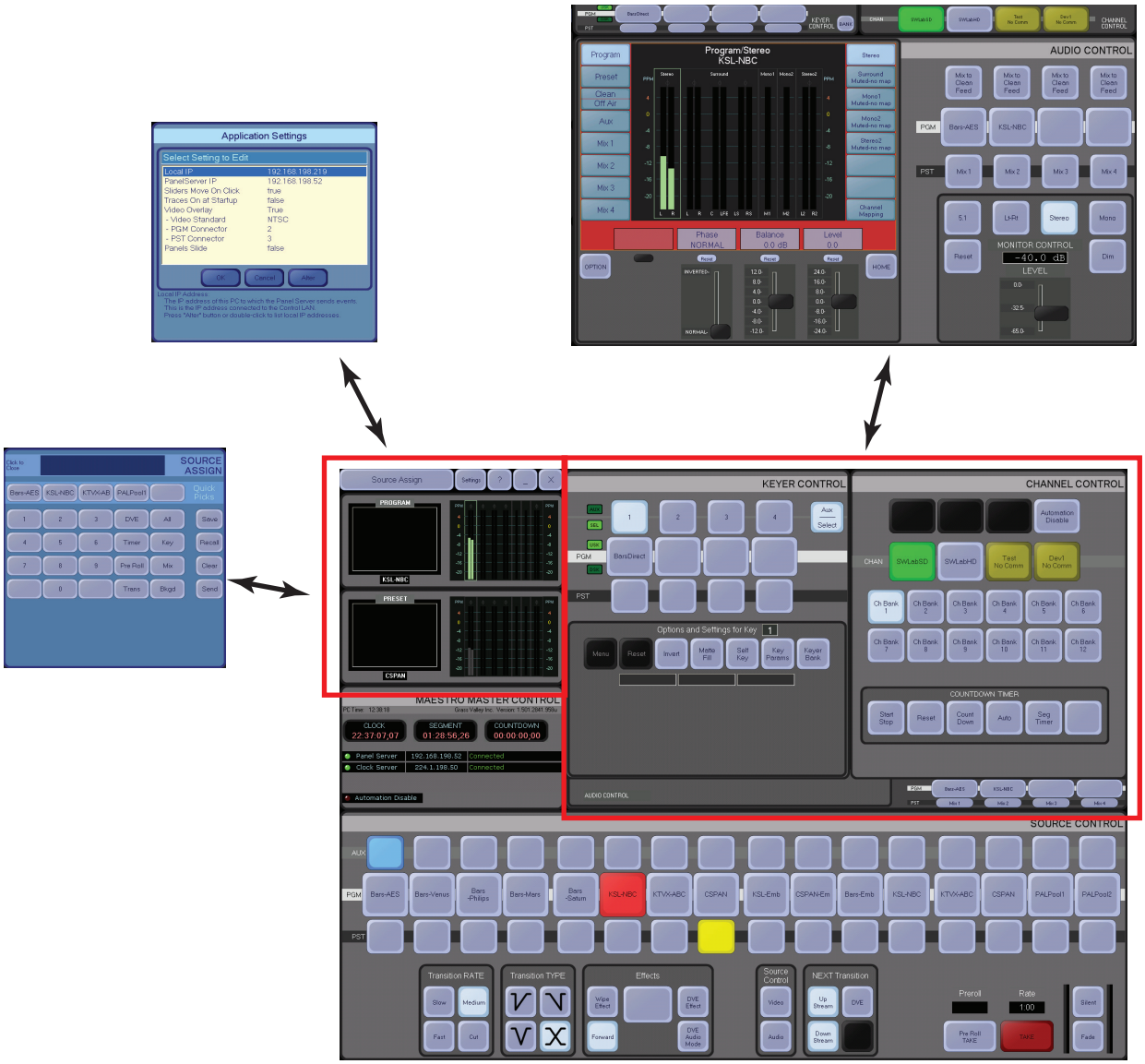
This panel is used to switch the keyers in/out of the video signal and to modify keyer parameters such as clip, gain and opacity.

Operation of each of these sub panels is detailed in *Section 2*.

GUI Control Panel

The GUI control panel can be used for manual intervention in systems controlled by an automation computer, or as the primary on-air control device. See Figure 13.

Figure 13. GUI Control Panel



The upper-right area is used to display the Audio Panel or the Keyer and Channel Control Panels. The upper-left corner is used to display the Source Assign Panel, the Application Settings panel or the video overlay option (showing Preset and Program video) and audio metering.

Configuration/Deployment PC

This computer is used for loading software, configuration of the various system components, and system monitoring.

Note In some systems, the configuration and /or deployment applications may be supplied on the GUI control panel PC.

Specifications

For mechanical, environmental, and electrical specifications, refer to *Appendix A-Specifications*.

Section 2

Basic Maestro Operation

This section describes operation of the Maestro Master Control System.

Except where noted, the following discussion applies to both the hardware control panel and the GUI control panel.

Powering Up the System

For start up instructions, see Appendix B of the Maestro Installation and Service Manual (part # 071869801 and greater).

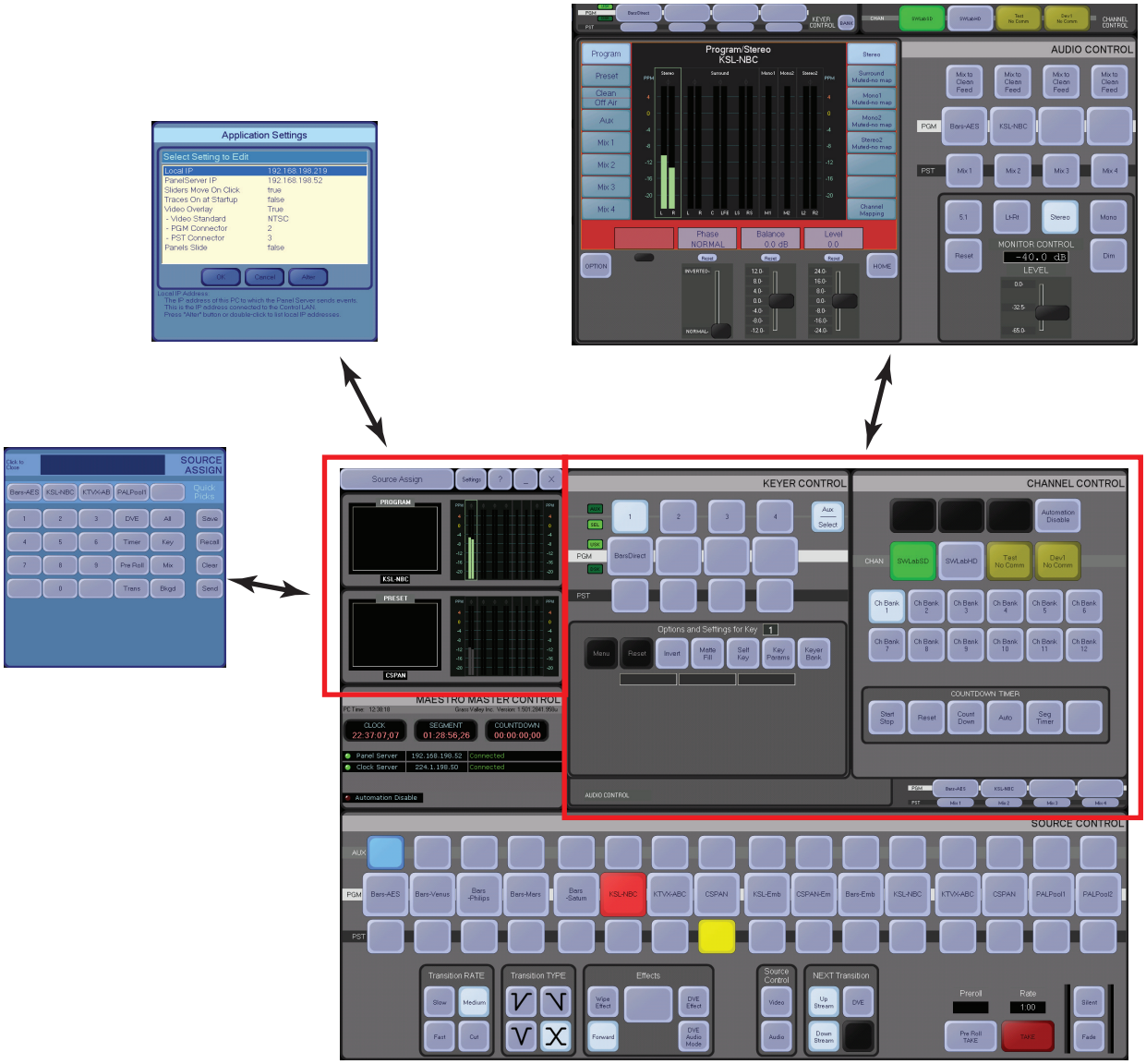
GUI Control Panel Start Up

- Boot up the GUI control panel PC.

Note If the PC was purchased as part of the Maestro system, the factory default login for the administrator is `maestro` with password `maestro`. The factory default username is `user` with no password.

- Launch the MasterControl application. This will display the GUI control panel:

Figure 14. GUI Display



Notice that some areas of the GUI panel are used for more than one sub panel.

If the GUI PC is being used to run the configuration/deployment applications, use the **Alt+Tab** keys to switch between the control panel (The GUI panel will be identified as MCPanel.) and the other applications. You can also use the “Windows” key plus **Tab** to display the taskbar.

Touchscreen calibration

If a touch screen LCD and driver are installed, calibrate the touch screen as

follows:

1. launch the TouchWare application from the Windows desktop.
2. Select CalibrateTouch and touch your finger on the target that appears.
3. Continue touching all of the targets that appear until the calibration process is complete.
4. Test the touchsceen calibration. Repeat the above steps if needed.

System Buttons (GUI Only)

Source Assign - displays the Source Assign panel in the upper left corner of the GUI screen.

Settings - displays the Settings menu in the upper left corner.

"**?**" button - displays Help topics.

"_" button - minimizes GUI screen.

"**X**" button - exits GUI screen. If desired, an "Exit ID" can be set to prevent unauthorized exit of the GUI application.

Application Settings Menu

The Applications Settings ("Settings") menu is available only on the GUI control panel screen. It is one of three windows that can be selected for display in the upper left corner of the GUI screen (the others are the Video Overlay Option and the Source Assign menu).

Panel Server IP - Control LAN IP address of the PCI Panel Server associated with the GUI..

Local IP - Control LAN IP address of the PC associated with the GUI. For more information, refer to the table entry for the "Maestro GUI PC PCI expansion slot LAN card."

Sliders Move On Click - True = sliders can be moved by clicking anywhere in the slider boundary.

System Buttons Right - moves the System Buttons (Source Assign, Settings, etc.) to the upper right corner of the GUI screen.

Traces On at Startup - True = entries will be sent to the Trace Window (GUI log) as soon as the GUI application starts up. Used for factory testing.

Video Overlay - True = video overlay option board is present in the GUI PC.

Video Standard - selects NTSC or PAL for the video overlay option.

PGM Connector - selects card-edge connector number (0-3) for PGM input to video overlay option board. (Factory setting)

PST Connector - selects card-edge connector number (0-3) for PST input to video overlay option board. (Factory setting)

Video Overlay Option (GUI Only)

On systems equipped with the video overlay option, the Program and Preset video will appear in the upper left hand corner of the GUI screen. On touchscreen monitors, touching the video display area will enlarge the picture and move it to the upper-right corner. Touching the enlarged image (or clicking it with the mouse on touchscreen or non-touchscreen systems) will send it back to the original size and location.

Note The video overlay option supports standard definition (NTSC or PAL) SDI video only. HD video is not currently supported.

Program, Preset and Aux Buses

The following discussion assumes that the "NEXT Transition" selection is **Upstream**. For more information concerning Upstream vs. Downstream operation see page 106.

Selecting a Source on the Program, Preset and Aux (Background) Buses

Maestro has three main buses: Program (Air), Preset and Aux (optional). Preset is used to prepare sources to be put on Program. Aux is used to select a second video source for DVE effects if the optional DVE mezzanine board is installed. These buses are primarily controlled by the three rows of 16 buttons across the Source Control panel.

The name of each source (VTR1, CAMERA 1, BARS, etc.) is displayed on the **Program bus** buttons.

The **Program** buttons should rarely be used. Rather, events are normally set up on the Preset bus and a transition executed with the **Take** (or **Preroll Take**) key, as detailed below.

Note The Preroll function is not presently implemented. The **Preroll Take** button operates the same as the **Take** button.

The AUX bus also allows preview of an assigned source without disrupting the current Preset bus selections (so as not to interfere with automation).

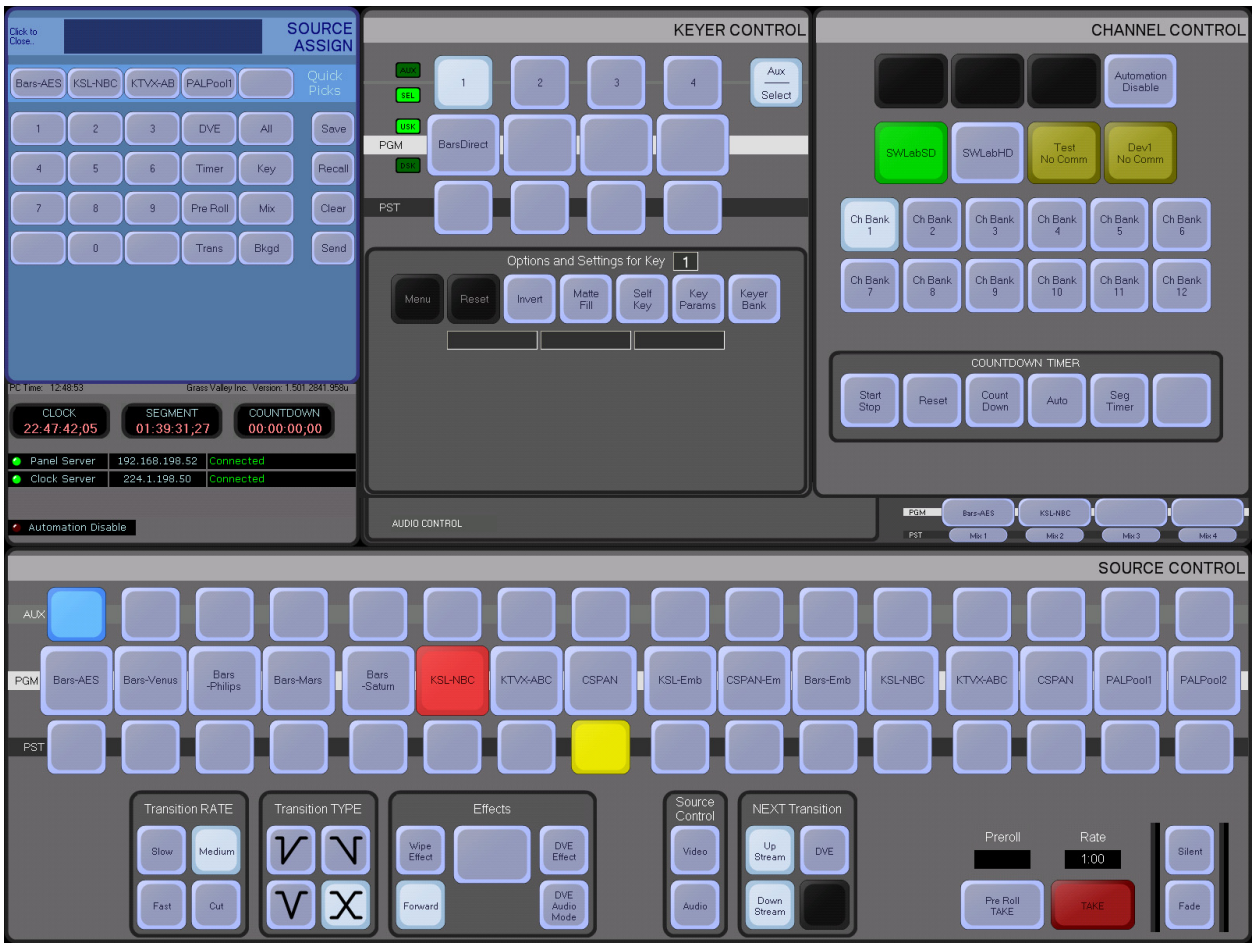
Assigning a Source to a Program/Preset/Aux Button

Each of the **Program/Preset/Aux (background)** buttons are assignable to any source feeding the associated matrix router (e.g., Concerto, Trinix, etc.).

Note The source assignment is made by selecting the Pst button to which the source should be assigned while in Source Assign mode. The name of the source appears on the Pgm LCD button. The Pst button below and the Aux button above the source named on the Pgm button refer to the same source on those other busses.

Assignment of sources to buttons can be made using the Source Assign panel:

Figure 15. GUI panel with Source Assign Panel Opened



- All buttons can be assigned at once by Recalling (pressing the **Recall** button) a previously saved source assignment set (see page 118).
- Sources can be assigned one at a time to buttons by
  - Selecting on of the Quick Pick sources and selecting an available (green illumination) button on the Preset bus or by following these steps

1. Press **Send**.
2. Select the desired source (category and number), and
3. Select an available (green illumination) button on the Preset bus

Note If you do not know the categories and entry numbers for a source, you can use the Up and Down arrows (on the **A** and **E** keys) on the Source Assignment panel. Do not press **Send** first. These will scroll through all available sources. When the desired source appears in the window, press an available (green) Pst button to assign the source. If **Send** is pressed first followed by a category, the Up and Down arrow keys scroll through the sources in the selected category.

Note GUI panel - If the Source Assign panel is not in view, select the **Open Source Assign** button in the upper left corner of the screen.

Note Some Program/Preset buttons may not be programmable using the front panel. During system configuration, buttons may be assigned to fixed sources (e.g. “Network”), or, in the case of automation-controlled systems, three buttons may have been assigned to the automation computer. However, the operator can still select any of the buttons at any time.

Note You cannot **Send** a source to a Preset/Program button group that is in use.

If no buttons are pressed within 5 seconds after pushing the **Send** button, the **Send** light will automatically go out, canceling the assignment mode.

Clearing a source

To clear a mnemonic from the Program bus button, press **Send**; the Source Assignment display will indicate “Unassign.” Then press the desired Preset key. The Program button will go blank. Pushing a button in a group with a blank display will not cause any action to be taken.

Assigning a Source Using Quick Pick

A group of five Quick Pick assignment buttons are always available for source assignment of commonly used video and/or audio sources. These buttons are configured on the “Quick Pick Set” table, as described on.

Any single source available on the Source Assign keypad may be associated with a Quick Pick button. When any one is selected, the source is displayed above the keypad, the **Send** key illuminates, and a destination may be selected on the Preset bus to receive the appropriate assignment.

Upon selecting a destination, the assignment is made and the **Send** lamp goes out. If a Quick Pick button is selected and no assignment is made within 5 seconds, the **Send** key extinguishes and the operation is cancelled.

Assigning an audio-only source

An “audio-only source” is a source defined in the Input set with no entry in the video column.

On the control panel, an audio-only source is assigned by pressing SEND, getting a valid audio-only source in the keypad window, and pushing a

blank Preset button. The name of the audio-only source will appear on the PGM LCD button display.

When an audio-only source is selected on the Preset bus, it will replace the audio from the "normal" (video+audio) source already on Preset; the audio-only source will be indicated by a low-yellow tally. When **Take** is pressed, the audio-only source will move to Program and be indicated by a low-red tally.

Note The audio-only source will replace only the audio groups defined for that source. Other audio groups (if present) will be muted. For example, "Tone" could be defined with left and right audio in the "Stereo 1/2" group. If a video source with "Stereo 1/2" and "Stereo 3/4" groups is presently selected, and then "Tone" is selected, only the "Stereo 1/2" group will be replaced by the audio from "Tone" and the "Stereo 3/4" audio group will be muted.

Use video breakaway to select video from a different source without disturbing the currently-selected audio source(s).

Warning Indicators

Non-sync Indicator

If the "NS" indicator appears on the Program LCD button, the selected source is non-synchronous with the reference input, and cross-fades will be disabled. Other transition types (e.g., V-fade, fade-cut, and cut-fade) remain available.

Note In order to be synchronous with the reference input, sources must be timed within +/- 1/2 line of the reference.

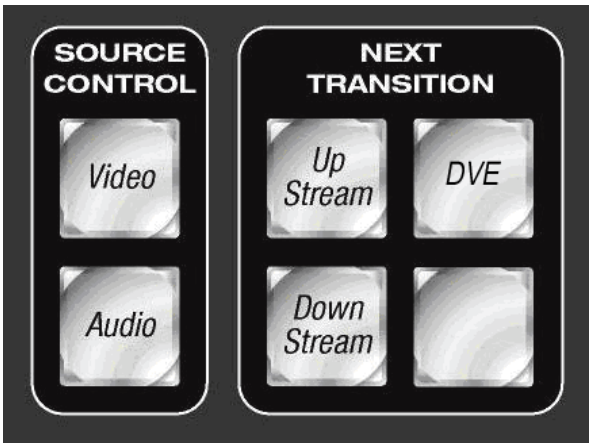
Transition Setup

Transition rates and types are selected with the button groups shown in Figure 17.

The Next Transition Button Group

The Next Transition Button group provide extensive control over what happens when a Take occurs. For example, if only the **Down Stream** button is enabled, then only the selected downstream keys will transition when the next Take happens. Each of these buttons is explained below.

Figure 16. Control Panel Source Control and Next Transition Button Groups



The **Up Stream** button will enable and disable all upstream transitions. Upstream transitions are the transitions between the PGM, PST, AUX busses, including Wipes. These transitions include the four upstream keys and all four audio mixers.

The **Down Stream** button will enable and disable all downstream transitions. Only the four downstream keys are affected by this button.

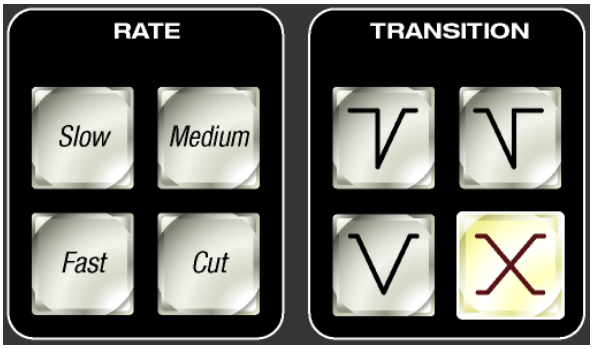
The **DVE** button will enable and disable DVE effects. If a DVE effect is active and the DVE button is turned off then Maestro operates only on the Pgm Effect window in the currently active DVE effect.

Rate Selection

The buttons labeled **Slow**, **Medium**, **Fast** and **Cut** in the Rate button group determine the rate at which a transition takes place. The time (in seconds:frames) associated with each rate is determined by entries in the Configuration Editor Channel Setup table.

Press the desired rate button. The time associated with this rate button appears in the Rate window above the **Take** button.

Figure 17. Control Panel Rate and Transition Buttons



User-Defined Transition Rates

Although the control panel operator cannot modify the rates associated with the **Slow**, **Medium** and **Fast** transition rate buttons, a user-defined transition rate can be selected as follows:

1. On the Source Assignment sub-panel enter the desired transition time in the format seconds:frames by pressing the number pad buttons for the desired time.

Note All of the significant digits must be entered. A transition time of 3 seconds requires the entry of the digits 3, 0 and 0. Entering 3 only would result in a 3 frame transition.

2. Press the **Send** button.

3. Press the **Trans/D** button.

The transition rate entered appears in the Rate window above the **Take** button.

Note The maximum transition time that may be entered is 9 seconds and 29 frames (9:29)

The user-defined transition rate stays in effect until it is changed by pressing one of the control panel rate buttons or entering a new user-defined transition rate.

While a user-defined rate is active, the control panel rate button illumination is extinguished indicating that none of these rates are currently active.

Transition Type Selection

Cut

To set up an instantaneous switch, select **Cut** in the Rate button group.

Fades

Fades are set up by pushing the appropriate button in the Transition Type button cluster. By default, the type is applied to both video and audio. To apply one type to video and another to audio, see *DVE Effects* on page 61

The upper-left transition button is a Cut-fade, meaning the first source cuts immediately to black, then the second source fades up.

The upper-right transition button is a Fade-cut, indicating the first source fades to black, then the second source cuts to full level instantly.

The lower-left transition button is a V-fade. This means the Program source fades down to black in 1/2 of the specified to black, then the Preset source fades up in 1/2 the specified rate.

A Cross-fade (dissolve) is set up by pressing the button marked with an "**X**". A dissolve is a mix between two sources. Halfway through a dissolve, both sources will be mixed evenly with each other.

Bus Tally Indicators

Source selected on the Aux, Program and Preset buses will have tally indicators which show the status of the source. The tally status is indicated by the illumination color of the button. These tally colors will change depending upon the transition status and effect status of the control panel. All selected sources will be tallied in one of the following colors:

Red

Sources illuminated in red are sources that are currently contributing to Program (On Air) content (these sources may change on the next transition). Multiple sources on the Program bus for background video, keyers and audio mix overs may be on air simultaneously. In addition, a source on the Aux bus may also be tallied red if a DVE effect is active.

Note No sources selected on the Preset bus (background video, keyers or audio mix overs) will ever tally red. By definition, sources on the Preset bus are not on air, they may merely be selected to go on-air on the next transition.

Yellow

Sources illuminated in yellow are sources that are preset to go on air and will be contributing to Program (On Air) content after the next transition. Multiple sources on the Preset bus for background video, keyers and audio mix overs may be on air simultaneously. In addition, a source on the Aux bus may also be tallied yellow if a DVE effect is active for the next transition.

Note No sources on the Program bus (background video, keyers or audio mix overs) will ever tally yellow as, by definition, sources on the Program bus are on air and will be tallied red

Blue

Sources illuminated in blue will not be changed in the next transition. If a source on the Aux, Program or Preset bus is blue, this is an indication that that the transition or effect settings active on the panel will prevent that source from going on or off air. Its present status will be maintained at the next transition.

Making a Transition (Using the Take Key)

A transition is normally initiated by pressing the **Take** or **Preroll Take** key. The rate of a transition is determined by the four buttons on the bottom left area of the panel marked **Slow, Med, Fast**, and **Cut**. Each rate button is programmed with a certain duration during configuration, using the Channel Setup table.

By default, the transition will begin and execute with the same rate on both video and audio (to vary the timing or rate between video and audio, see *DVE Effects* on page 61.The transition duration is automatically displayed in the Rate display above the **Take** key.

Each transition causes all information contained on the Preset bus to be transferred to the Program bus, and vice versa. When a transition occurs, not just the Preset source, but the Preset audio gains and balances, the key source and key information such as clips, background, etc., are all transferred to Program. This allows the next event to be completely previewed, and transferred to Program with a single transition. This “Preset-Take” technique should be used whenever possible (rather than taking a source directly to Air on the Program bus).

Preroll Take key - the Preroll function is not presently implemented. The button operates the same as the **Take** button.

Silent key - takes audio outputs to silent. To return to normal levels, press **Silent** again.

Fade (Master fade) key - this key can be used for an emergency fade to black and silent audio.

When in black, a new source can be selected using the ***Program*** buttons; this source will appear on the ***Preset*** monitor. To move the new source to Program, press **Fade** again.

Selecting Transition Effects

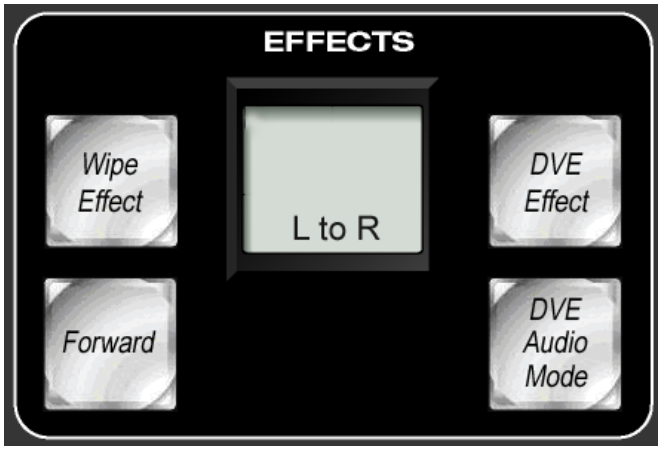
Transition effects include wipes and digital video effects (DVE).

Wipes

In order for Wipe effects to be available for selection by the operator, Wipe effects must be defined in the Configuration Editor and assigned to the channel currently under the control of the control panel. If Wipe effects are not defined for the current channel, no Wipe effect selection is possible.

Wipe transitions are selected using the buttons in the Effect buttons group shown in Figure 18.

Figure 18. Control Panel Effects Button Group



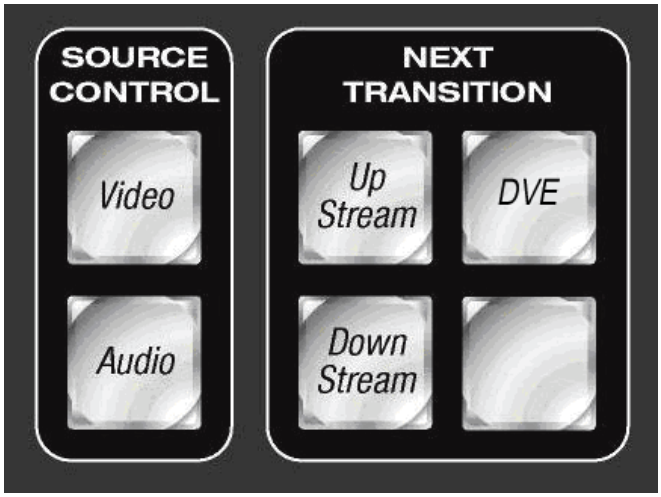
Note Wipes are always performed “upstream,” i.e., they have no effect on downstream keys.

To set up a wipe transition:

1. Select **Upstream** in the Next Transition cluster (See Figure 19.)

Note The On/Off setting of the **Downstream** button does not affect the wipe.

Figure 19. Control Panel Source Control and Next Transition Button Groups



2. Press the **Wipe Effect** button until the desired wipe transition name appears on the bottom text row of the Effects LCD button.

   To reverse the direction of the wipe name list, press **Forward** (this button may be labelled **Wipe Select** on some control panels), then press **Wipe Effect** again.

   The wipe names are from the Wipe Transitions table in the Maestro Configuration Editor.

3. Press one of the Rate buttons to select the speed of the wipe.

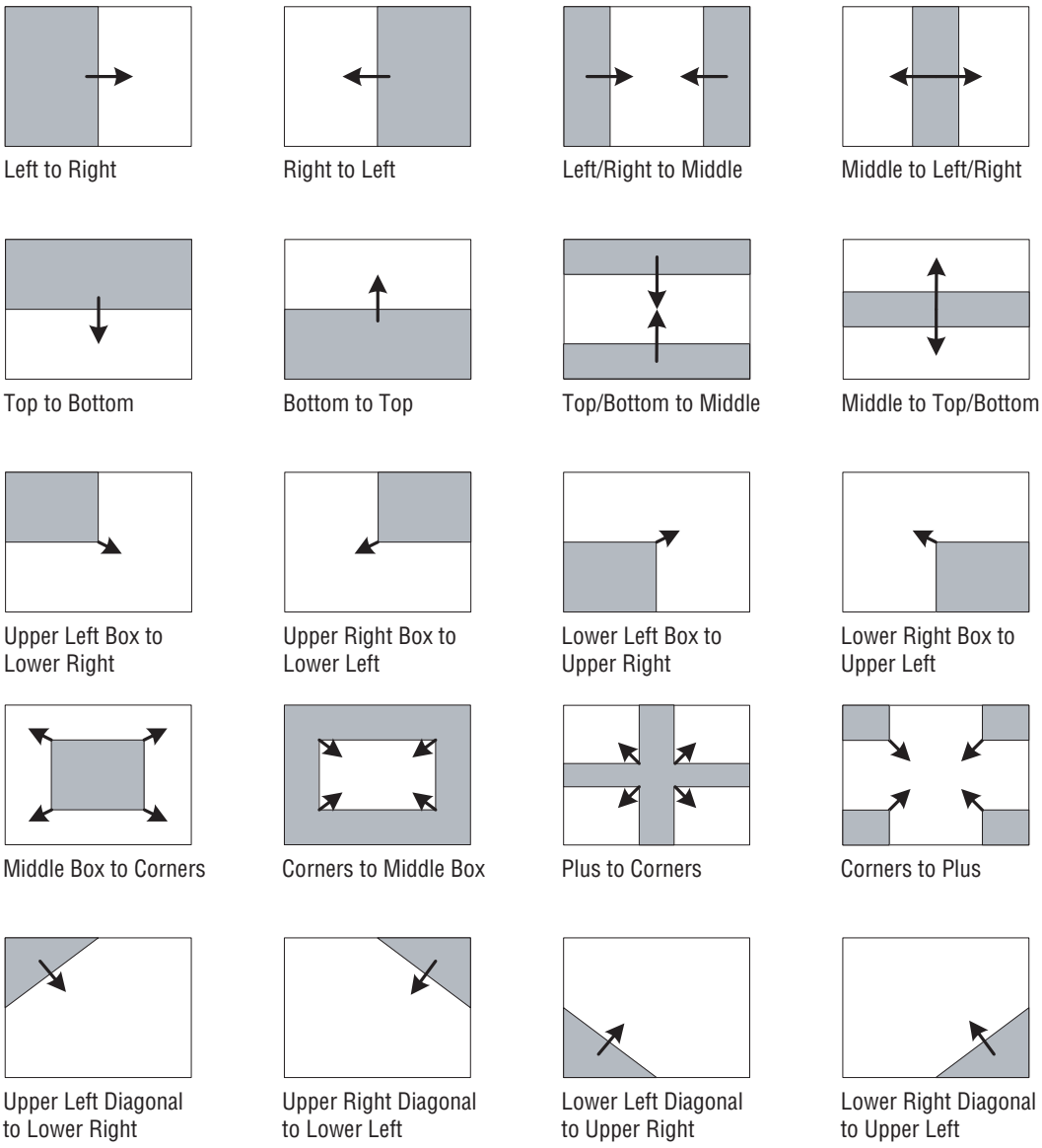
4. Press **Take** to transition from the Program bus source to the Preset bus source with the selected wipe effect.

Note The audio transition type (cross-fade, fade-fade, etc.) is configured with the video wipe definition in the Configuration Editor.

5. To exit the wipe transition mode, press the **Effects** LCD button. This causes the **Wipe Effect** button illumination to extinguish and cancels the wipe effect.

Wipes, if configured for use, may include one, many, or all of the wipe patterns illustrated in Figure 20.

Figure 20. Available Wipe Patterns

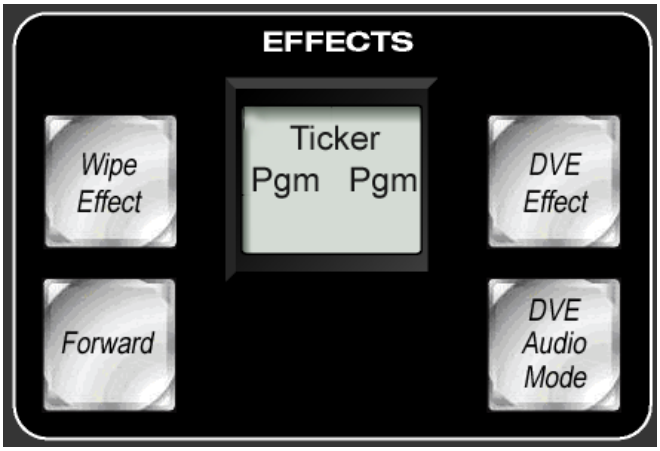


DVE Effects

In order for DVE effects to be available for selection by the operator, DVE effects must be defined in the Configuration Editor and assigned to the channel currently under the control of the control panel. If DVE effects are not defined for the current channel, no DVE effect selection is possible.

DVE effects are selected with the **DVE Effect** (Macro Effect on some control panels) and **DVE Audio Mode** (Macro Select on some control panels) buttons in the Effect button group. See Figure 21.

Figure 21. Control Panel Effects Button Group



The **Forward** (Wipe Select on some control panels) button is used to determine the direction for scrolling through the list of available effects.

Select a DVE effect, video sources and audio mode in the following manner:

1. Verify that the **DVE** button in the Next Transition button group is illuminated. If it is not illuminated, press the **DVE** button.
2. Press the **DVE Effect** button. If a DVE effect was previously selected and then deactivated, pressing the **DVE Effect** button activates the previously selected DVE effect (the **DVE Effect** button is brightly illuminated).
3. Continue pressing the **DVE Effect** button until the desired effect name appears on the top line of text on the Effects LCD button.

Note As DVE effects are selected, a preview of the effects can be seen on the PST monitor.

4. Select the desired second video source on the Aux bus. The video source on the Pgm bus will also be used in the effect unless the entry mode for the selected effect is Pst.

Note If the source selected on the Pst bus is different than the source on the Pgm bus, the source on the Pst bus will be the on-air source at the conclusion of the DVE effect transition.

The second line of text on the Effects LCD button displays two words:

- The first is the video entry mode (Pgm, Aux , or Pst) for the effect which is determined by the effect configuration and cannot be changed.
- The second is the effect audio mode. The effect definition determines which of the five possible audio modes (Pgm, Aux, P/A, A/P, P+A)) are available for the selected effect.

Possible Enter effects are:

- Pgm - the current program source is transformed in the Pgm effect window and the Aux source is transformed in the Aux effect window.
- Aux - the selected Aux source is transformed in the Pgm effect window and the Pgm source is transformed in the Aux effect window. Once the effect is complete, the Aux source is what will be displayed on the Program bus.
- Pst - A full screen transition is performed (e.g. a cross fade) to an image in which the Pst source occupies the Pgm effect window and Aux occupies the Aux effect window. The Pst source is what will be displayed on the Program bus.

5. Select the desired audio mode by pressing the **DVE Audio Mode** button until the audio source(s) you want to be on air appear(s) as the second word in the second line of text in the Effects LCD button.

Possible DVE Audio Modes are:

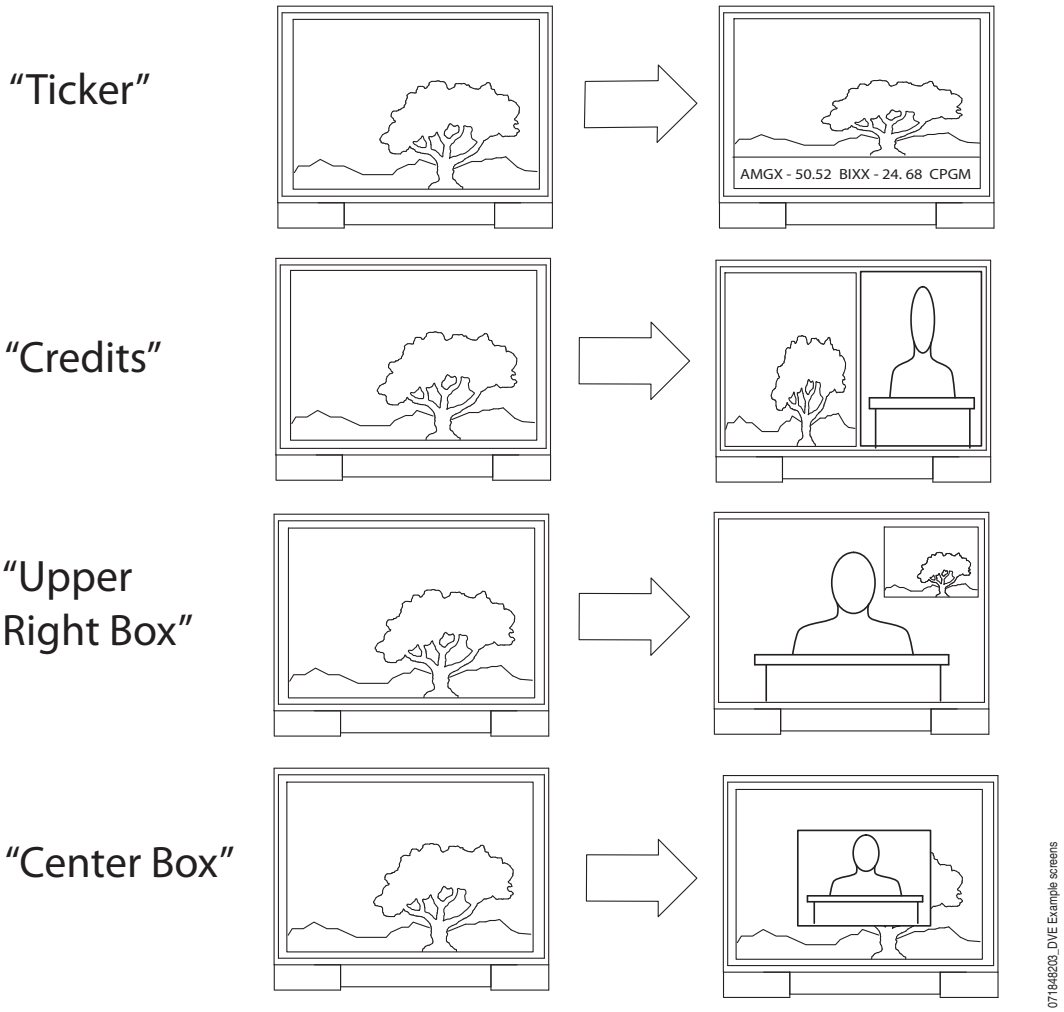
- Pgm - the audio associated with the source on the Pgm bus will be on -air.

Note In all DVE effects, the source that is displayed in the Pgm effect window at the end of the transition will always be on the Pgm bus even if it was selected on another bus before the transition was executed. In DVE Audio Mode selection, Pgm refers to the audio associated with whatever source is in the Pgm effect window.

- Aux - the audio associated with the source on the Aux bus will be on air.
- P/A - Pgm audio as a mix over the Aux audio (The default over ratio is defined in the DVE effect configuration.
- A/P - Aux audio as a mix over the Pgm audio (The default over ratio is defined in the DVE effect configuration.
- P+A - audio from both sources at full level.

Some sample DVE effects are shown below in Figure 22. These are examples only and may not reflect the type of DVE effects available for use by all Maestro operators.

Figure 22. DVE Effect Examples



In the "Ticker" example, the source on Pgm (same source is selected on Pst) is squeezed up from the bottom of the screen revealing the source on Aux at the bottom of the screen. This effect style is commonly used when displaying "tickers" such as stock prices, sports scores, weather alerts, etc.

In the "Credits" example, the source on Pgm (same source is selected on Pst) is squeezed to one side of the screen and the source on Aux is revealed on the other side of the screen. This effect style is commonly used to display the credits as one program is ending while simultaneously running a promotion for an upcoming program or a commercial spot on the other side of the screen.

In the "Upper Right Box" example, the source on Pgm (same source is selected on Pst) is squeezed into a window in the upper right corner of the screen and the source on Aux is revealed in the background. This effect style is commonly used in newscasts to display video in the corner of the screen about which the reporter is speaking.

In the "Center Box" example, the source on Aux is unsqueezed over the top of the source on Pgm (the source on Pst is ignored and will illuminate in blue).

Some important things to keep in mind with respect to effects:

- Wipe Effects and DVE Effects can be active simultaneously. Both a wipe and a squeeze can take place at the same time with the wipe taking place within the Pgm effect window.
- If a DVE effect is defined with the Pgm enter mode and you want to transform the current Pgm source into the Pgm effect window without changing the source, the same source should be selected on the Pst bus. If a different source is on the Pst bus, that source will occupy the squeeze window at the end of the transition.
- If you want to transform the current on air source without going to black, crossfade (X-fade) should be the selected transition type.
- You can "hot take" to a new source in the Pgm effect window by pressing the desired source LCD button on the Pgm bus. You can also "hot take" to a new source in the Aux effect window by pressing the preferred source LCD button on the Aux bus.
- If an exit mode other than the default mode for that effect is used to exit the effect, the corresponding enter mode becomes the default enter mode the next time the effect is activated. If you want to return to the configured default modes for a particular effect, select another effect and then return to the effect for which you want to reset to the configured default. See *Active DVE Effects* for more information on effect exit modes.
- You cannot exit a DVE effect by deactivating the effect. DVE effects are terminated only after selecting an appropriate exit mode and then transitioning.

To deactivate a DVE effect so that it is not included in subsequent transitions, do one of the following:

- Press the Effects LCD button.

Note This cancels both DVE effects and wipe effects if they are active. If you want to cancel only DVE effects, press the **Wipe Effect** button to re-enable wipe effects.

- Press the DVE button in the Next Transition button group. The light on the button will extinguish indicating that DVE effects are not active for the next transition. The **DVE Effect** and **DVE Audio Mode** buttons will also illuminate in blue to indicate their inactive state.

Active DVE Effects

When a DVE effect is active (on air), the configured active effects for that DVE effect become available. The configured active effects may include the three exit effects and four transition type effects and an audio only transition effect.

The exit effects are displayed in the following format:

Exit->xxx

The "xxx" is either Pgm, Aux, or Pst depending on the enter mode that was used to enter that effect.

Exit->Pgm means the current PGM source will become full screen and remain PGM.

Exit->Aux means the current AUX source will become full screen and the PGM source and AUX source will exchange roles.

Exit->Pst means the current PST source will become full screen and the PGM source and the PST source will exchange roles.

One or all of the exit modes listed below may be available depending upon the effect definition. These choices may vary per effect.

- Exit->Pgm - This exit mode transforms the Pgm effect window to full screen.
- Exit->Pst - This exit mode replaces the on-air effect with the video selected on the Pst bus.
- Exit->Aux -This exit transforms the Pgm effect window until it disappears simultaneously transforming the Aux effect window to full screen. At the end of the transition, the PGM source and AUX source exchange roles.
- AudioOnly - This only transitions the audio. The active video effect is unchanged. The audio that will be on-air after pressing the **TAKE** button is selected with the **DVE Audio Mode** button. Available audio modes are determined by the "Available Audio Mode" selections explained below.
- Aux<->Pst - This transitions between AUX and PST sources within the Aux effect window. AUX and PST sources exchange roles.
- SwapPgmAux - This cut-only transition swaps the contents of the Aux effect window and the Pgm effect window. AUX and PGM sources exchange roles. The selected transition rate and type are disabled.

- Pst>Pgm>Aux - This cut-only transition rotates the sources on all three busses in the direction indicated by the ">." The selected transition rate and type are disabled.
- Pst<Pgm<Aux - This cut-only transition rotates the sources on all three busses in the direction indicated by the "<." The selected transition rate and type are disabled.

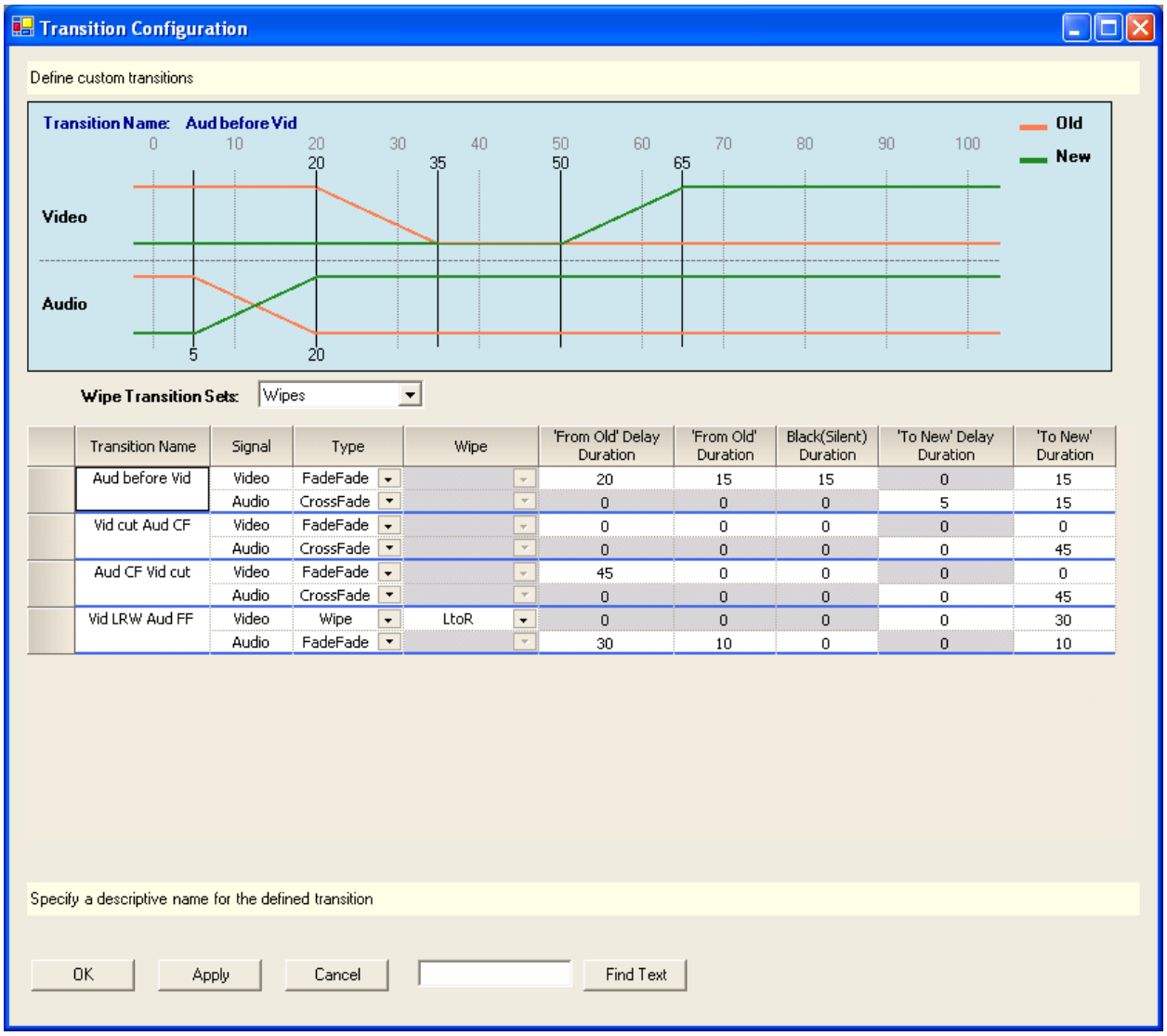
Press the **DVE Effect** button to cycle through the available exit modes until you find the desired mode.

If AudioOnly is the selected exit mode, press the **DVE Audio Mode** button to change the audio mode for the effect. Pressing **Take** while in the AudioOnly effect mode only changes the audio on air with the effect and not the video effect.

Selecting Configured Independent Transitions

Configured Independent Transitions allow all the parameters (style, rate, delay, etc.) associated with video and audio transitions to be configured independently. Standard transitions (those selected with the transition type buttons explained above) transition video and audio at the same rate, in the same style and at the same time. Figure 23 shows the definition of an independent configured transition.

Figure 23. Independent Configured Transitions in the Configuration Editor

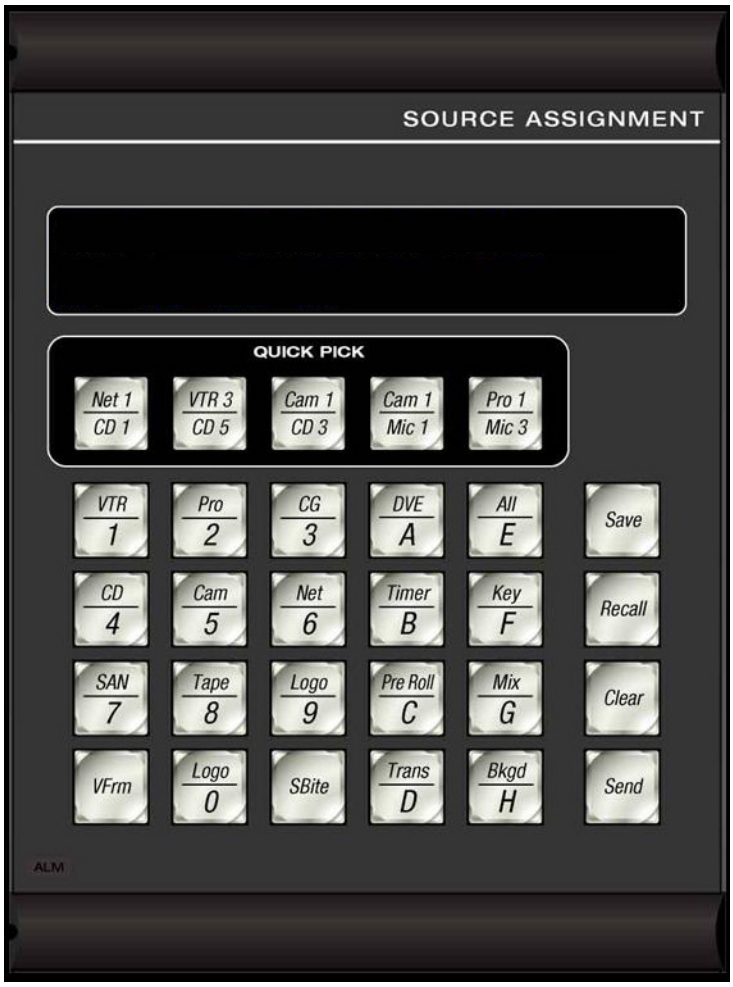


Transition Name	Signal	Type	Wipe	'From Old' Delay Duration	'From Old' Duration	Black(Silent) Duration	'To New' Delay Duration	'To New' Duration
Aud before Vid	Video	FadeFade		20	15	15	0	15
	Audio	CrossFade		0	0	0	5	15
Vid cut Aud CF	Video	FadeFade		0	0	0	0	0
	Audio	CrossFade		0	0	0	0	45
Aud CF Vid cut	Video	FadeFade		45	0	0	0	0
	Audio	CrossFade		0	0	0	0	45
Vid LRW Aud FF	Video	Wipe	LtoR	0	0	0	0	30
	Audio	FadeFade		30	10	0	0	10

When independent transitions have been defined and assigned a unique transition association number, they may be activated with the Source Assignment sub-panel from the hardware or GUI control panel.

Note Configured independent transitions are defined in the Configuration Editor and assigned a unique transition association number. These numbers and their corresponding transition effects must be known to the control panel operators in order to recall a configured independent transition.

Figure 24. Source Assignment Sub-Panel



The steps for activating an independent transition from the Source Assignment control panel are as follows:

1. Press the **Recall** button.
2. Press the **Trans/D** button. The numeric keypad buttons will be illuminated.
3. Enter the transition association number of the desired independent transition using the numeric keypad buttons.

4. Press the **Recall** button again to activate the selected independent transition.

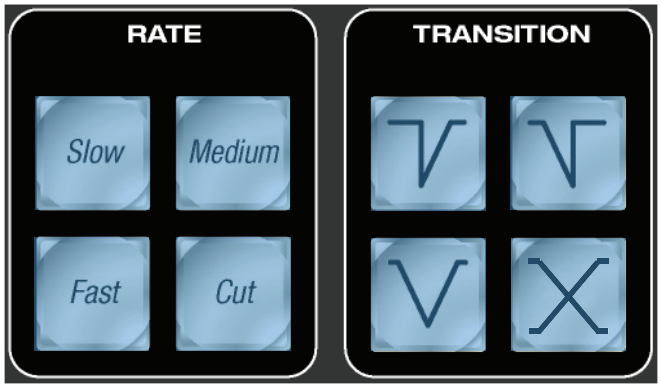
When a configured independent transition is active, the control panel provides the following feedback:

- The "Rate" display above the **TAKE** button on the Source Control subpanel will display "USER:xx" where "xx" is the transition association number of the recalled transition. This is shown in Figure 25.
- All the buttons in the **Rate** and **Transition** button groups are illuminated in blue to indicate they will not be active for the next transition. See Figure 26. The transition parameters normally selected with the **Rate** and **Transition** buttons are defined in the transition configuration.

Figure 25. Rate Display with an Independent Transition Activated

Note Automation commands allow the setup of dynamic transitions not already configured. This will result in "CUSTOM" in the Rate display and the blue rate and transition buttons as seen in Figure 26.

Figure 26. Rate and Transition Buttons with an Independent or Custom Transition Activated



The selected independent transition remains the active transition until another transition is selected by pressing one of the standard transition buttons in the **Transition** button group or by recalling another independent transition with the Source Assignment sub-panel.

Audio/Video Breakaway

Before proceeding with the explanation of how to use the audio/video breakaway capabilities it is important to distinguish between audio/video breakaways and audio/video splits. These definitions apply to the discussion which follows.

Breakaway: Selecting a combination of audio/video signals that are not normally associated with each other and are assigned to different source buttons. As an example, using one background button to select video from "Server 1" and another background button to select audio from "Studio B."

A breakaway can be performed on as many different buttons (sources) as there are groups. For example, one background button may be used to select video from "Server 1," another button to select the "Main Stereo" group from "Studio B," and a third background button to select the "Dolby 5.1" group from '"Tape 2."

The result of a breakaway is that multiple source buttons will be tallied to indicate all sources which are contributing video or audio groups to the on-air content.

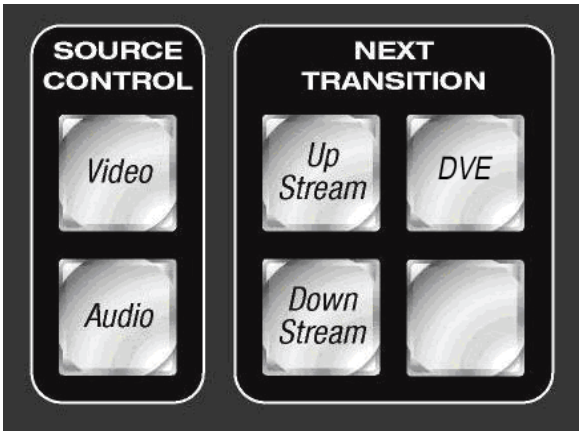
Split: Selecting a combination of audio/video signals that are not normally associated with each other and assigning those signals to the same background button. This allows the creation of a mixed source via the assignment of groups from multiple sources to a single button. Pressing the button for that source would result in the routing of the multiple sources assigned to that button. For example, one background button may be used to select video from "Server 1" and audio from "Studio B.'"

Note Dynamic splits (i.e. user-created splits using control panel buttons) are *NOT* supported in Maestro due to control panel limitations and the inability to communicate all necessary information to the operator. Furthermore, given the restrictions imposed on systems utilizing embedded audio, multiple source splits would not be possible. Prior versions of Maestro software supported a V/A indicator on the PGM bus LCD button to indicate the presence of a dynamic split using that source. This indicator is no longer needed and should no longer appear on the PGM bus LCD buttons.

Static splits can be configured for non-embedded audio sources via the Maestro Configuration Editor. A static split is a combination of video and audio from different router sources. The mnemonic assigned to the LCD button should represent the configured split and not just one of the assigned sources.

A video or audio breakaway is performed with the Video and Audio Source Control buttons located on the Source Control panel as shown in Figure 27.

Figure 27. Video and Audio Source Control Buttons



Video Breakaway

In order to execute a video breakaway, the operator performs the following steps:

1. Depress and hold the **Video** Source Control button. While the button is depressed, it will remain illuminated.

Note On the GUI control panel, the Video Source Control button will toggle on and off with each touch since it cannot be held down.

2. Select the desired video source on the desired background bus (PGM, PST or AUX). The selected video source will tally high (brighter illumination) while the source(s) from which the audio is derived tallies low (dimmer illumination).

3. Release the **Video** Source Control button. Button illumination will extinguish and the breakaway will be active.

If a breakaway is active on the PGM, PST or AUX bus, selecting a different source on the same bus (without the Video our Audio Source Control button depressed) will result in the de-selection of all breakaways on that bus and the selection of the "as configured" desired source. If a breakaway is desired with the new source, the steps above must be repeated.

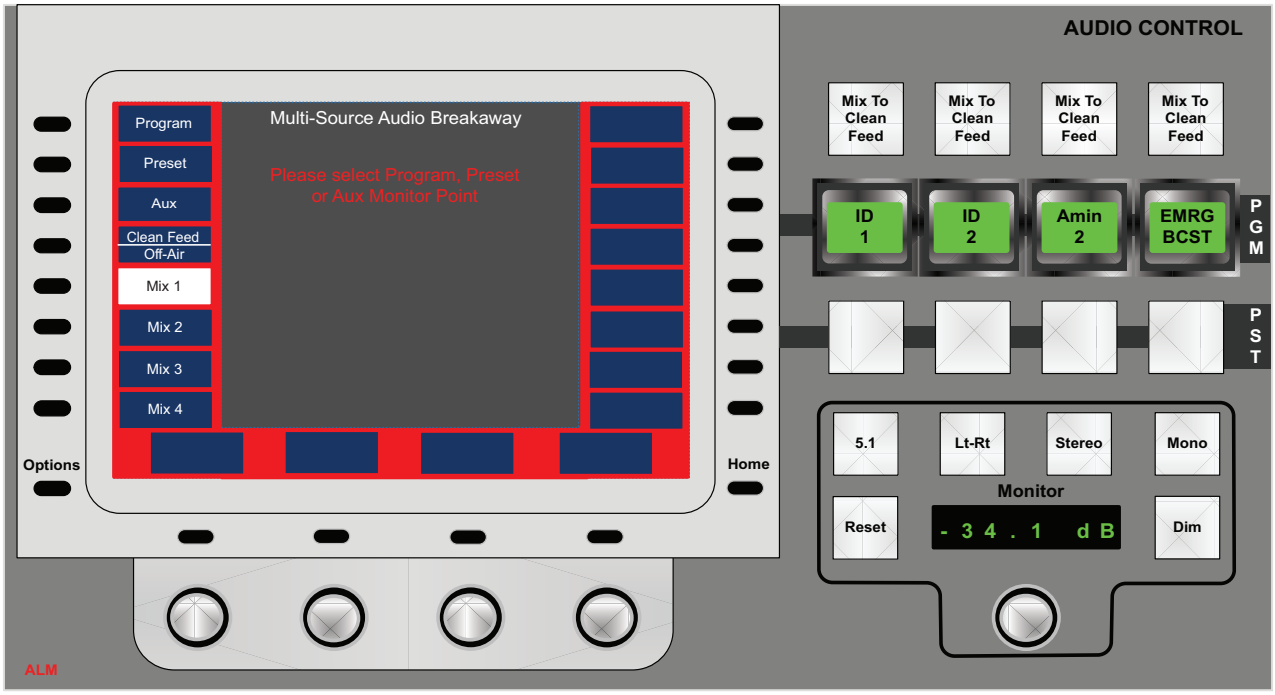
Audio Breakaway

It is possible to create audio breakaways by selecting one or more audio groups from one or more background bus source buttons. These breakaways can include the following:

- All audio groups from a single source
- One or more audio groups from multiple sources

Before initiating a breakaway, the audio monitor point must be set to Program, Preset or Aux. If one of these is not the active monitor point, the error screen in Figure 28 appears.

Figure 28. Audio Breakaway Error - Incorrect Monitor Point



Audio Breakaway - All Audio Groups From a Single Source

In order to execute an audio breakaway of all audio groups from a single background bus source, the operator performs the following steps:

1. Depress and hold the **Audio** Source Control button.

While the button is depressed, it will remain illuminated. The Audio Source Control button must remain depressed throughout the breakaway operation.

Note On the GUI control panel, the Audio Source Control button will toggle on and off with each touch since it cannot be held down.

If the error screen in Figure 28 appears, release the **Audio** Source Control button, select a valid monitor point (Program, Preset or Aux) in the Audio Control Home screen and depress and hold the **Audio** Source Control Button again.

Note Releasing the Audio Source Control button at any time during the Audio Breakaway process will result in all operations to that point in the process being cancelled and the Audio Source Control button illumination will be extinguished.

With the **Audio** Source Control button depressed, the Audio Control panel screen will display either Figure 29 *Audio Breakaway Status Screen* or Figure 30 *Multi-Source Audio Breakaway - Source Selection Screen*. The screen that is initially displayed will be the one last used in the most recent audio breakaway operation.

2. To breakaway all audio groups for a particular background bus (PGM, PST, AUX), press the desired source button on the appropriate bus.

The source from which the audio is broken away will tally low (dim illumination). To perform a breakaway of selected groups from one or more sources, proceed to *Audio Breakaway - One Or More Audio Groups From Multiple Sources*.

3. Release the **Audio** Source Control button.

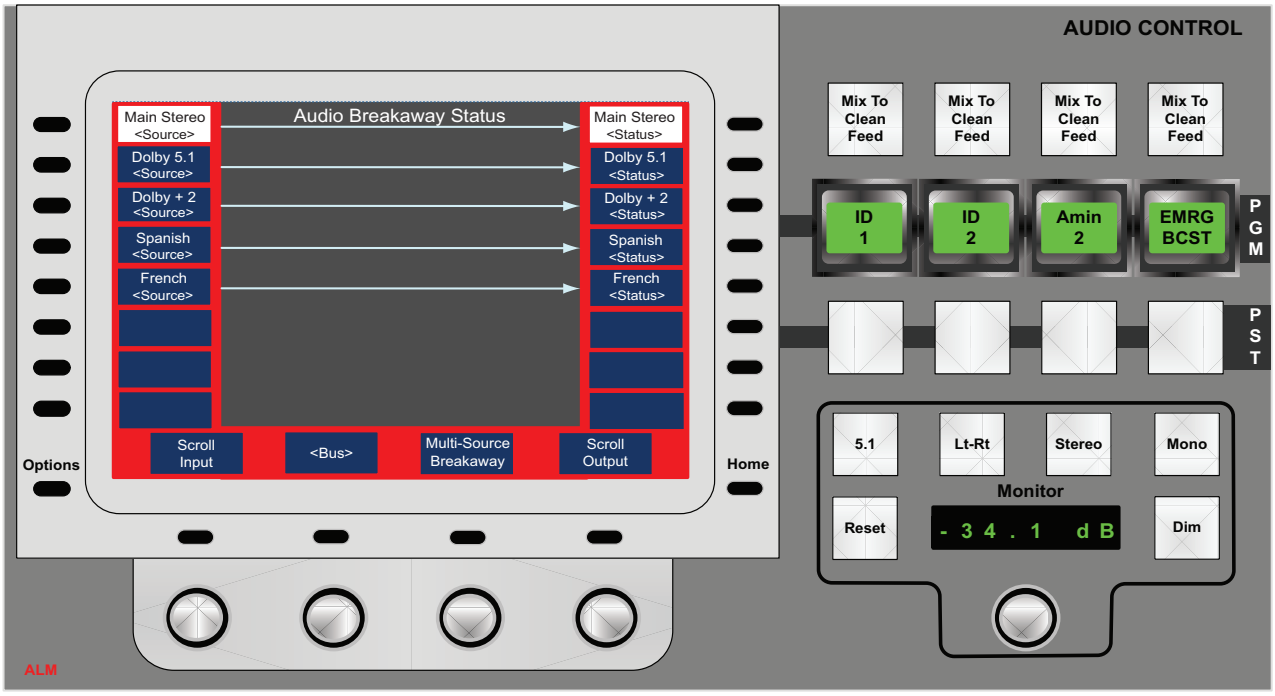
The Audio Source Control button illumination will extinguish and the breakaway will be active.

If a breakaway is active on the PGM, PST or AUX bus, selecting a different source on the same bus (without the **Video** or **Audio** Source Control button depressed) will result in the de-selection of all breakaways on that bus and the selection of the "as configured" desired source. If a breakaway is desired with the new source, the steps above must be repeated.

Audio Breakaway - One Or More Audio Groups From Multiple Sources

Before performing a breakaway, it is important to understand the functions of the *Audio Breakaway Status Screen* in Figure 29.

Figure 29. Audio Breakaway Status Screen



The *Audio Breakaway Status Screen* provides the following information and controls:

- **Audio Input Group Name and <Source> -** Appears on the left side of the screen. The audio input group name is the first line of text and the mnemonic for the selected source for that group appears on the second line. Since Maestro has no way of representing this information on the LCD buttons of the background busses, it is from this status screen that the audio groups to be broken away and sources are identified
- **Audio Output Group Name and <Status> -** Appears on the right side of the screen. Audio output group names come from the Audio Output Set defined in the Maestro Configuration Editor. The first line of text is the audio group name. The second line of text is the group status. The <Status> line will be blank unless the named audio group is not defined for the selected source. In this case, the <Status> line will display "Muted-no map."

Note Any audio output group(s) that is not defined for that source, either explicitly or via channel mapping, will be muted upon selection. It will display as "Muted-no map" in the Audio Output Group status line.

- **Scroll Input -** The first knob (from the left) is used to scroll the audio input group names vertically when more than eight group names have been defined. One "click" of the knob will scroll the name up or down depending upon the direction. Turning the knob to the right scrolls the list up. Turning the knob to the left scrolls the list down. Pressing the button above the knob resets the list to the default position in which the first audio group is aligned with the top left button.
- **Active Background Bus -** The second knob (from the left) is used to change the active background bus for breakaways. The default label is the bus currently active as the Audio Monitor point on Audio Control panel Home screen (Program, Preset or Aux). The active bus can be changed by turning the knob. Changing the bus will result in the input group names and associated source mnemonics being updated to reflect those associated with the selected bus. The channel mapping displayed in the Audio Breakaway screen will reflect the channel mapping associated with the selected bus. Pressing the button above the knob will result in resetting the bus to the default Audio Monitor point.
- **Multi-Source Breakaway -** The third knob (from the left) is labelled Multi-Source Breakaway. The knob itself has no function; however, the button above the knob is used to toggle between the Audio Breakaway Status screen and the Multi-Source Breakaway screen where breakaways can be created.
- **Scroll Output -** The fourth knob (from the left) is used to scroll the audio output group names vertically when more than eight group names have been defined. One "click"of the knob will scroll the name up or down depending upon the direction. Turning the knob to the right scrolls the list up. Turning the knob to the left scrolls the list down. Pressing the button above the knob resets the list to the default position in which the first audio group is aligned with the top right button.

  When the appropriate selections have been made in the *Audio Breakaway Status Screen*, press the button above the third knob to display the *Multi-Source Audio Breakaway - Source Selection Screen*.

In order to execute an audio breakaway of one or more audio groups from multiple background bus sources, the operator performs the following steps:

1. Depress and hold the **Audio** Source Control button.

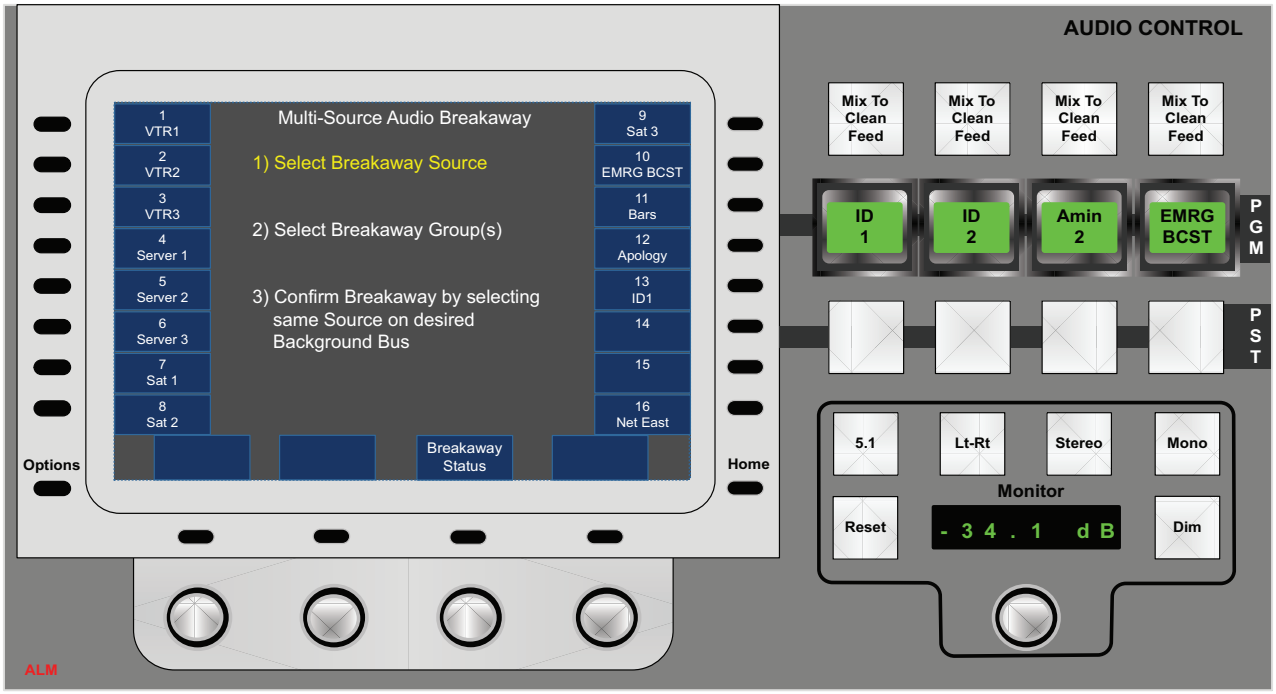
While the button is depressed, it will remain illuminated. The **Audio** Source Control button must remain depressed throughout the breakaway operation. Releasing the **Audio** Source Control button at any time during the Audio Breakaway process will result in all operations to that point in the process being cancelled and the **Audio** Source Control button illumination will be extinguished.

Note On the GUI control panel, the Audio Source Control button will toggle on and off with each touch since it cannot be held down.

2. Select the *Multi-Source Audio Breakaway - Source Selection Screen* (if it is not the active screen) by pressing the **Multi-Source Breakaway** button associated with the third (from the left) knob under the audio control screen.

This button acts as a toggle between the Audio Breakaway Status screen and the Multi-Source Audio Breakaway screen.

Figure 30. Multi-Source Audio Breakaway - Source Selection Screen

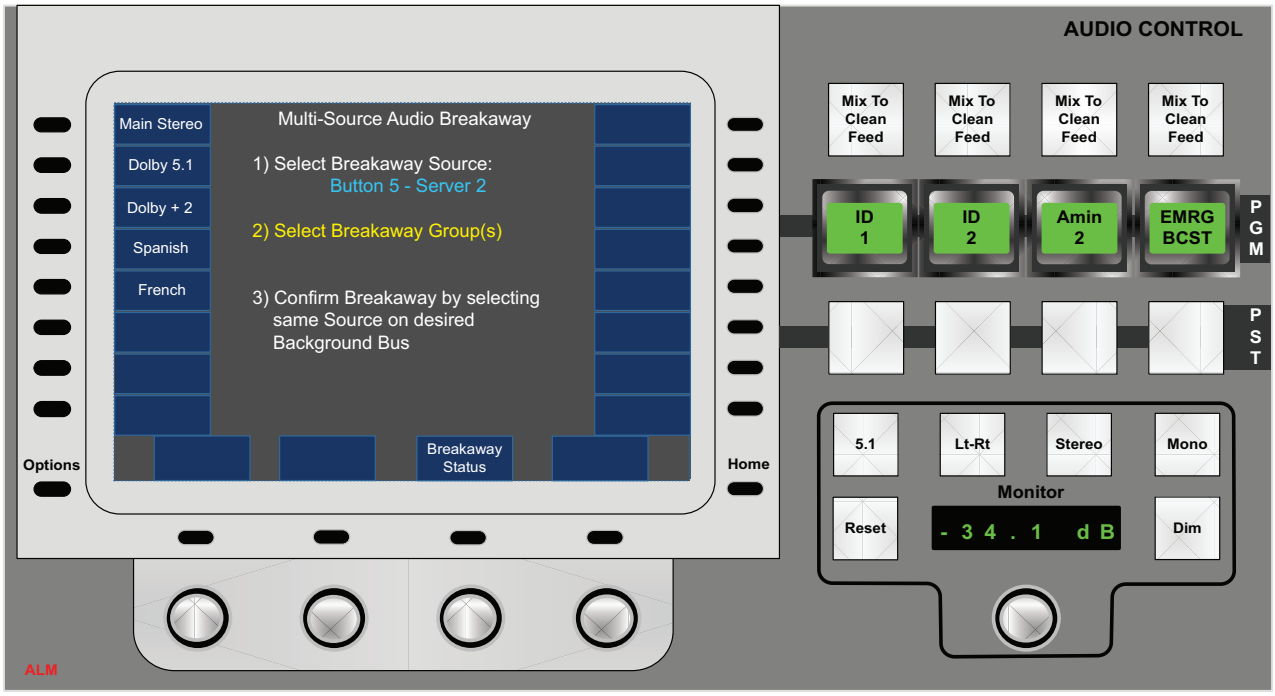


The *Multi-Source Audio Breakaway - Source Selection Screen* displays the steps for performing a breakaway. The first step is to select the breakaway source. The 16 soft buttons (eight on the left side and eight on the right side) are labeled with the source names assigned to the 16 background bus LCD buttons. The first line of text is a number corresponding to the background LCD button number (from 1 to 16 left to right on the PGM bus). The second line of text is the mnemonic/name of the source assigned to that button.

3. Select the source from which audio group(s) should be broken away by pressing the small black button next to the desired source label.

Once the source is selected, its button number and name appear in light blue text under Step 1) Select Breakaway Source. The second step, 2) Select Breakaway Group(s), will now be highlighted in yellow text.

Figure 31. Multi-Source Audio Breakaway - Group Selection Screen



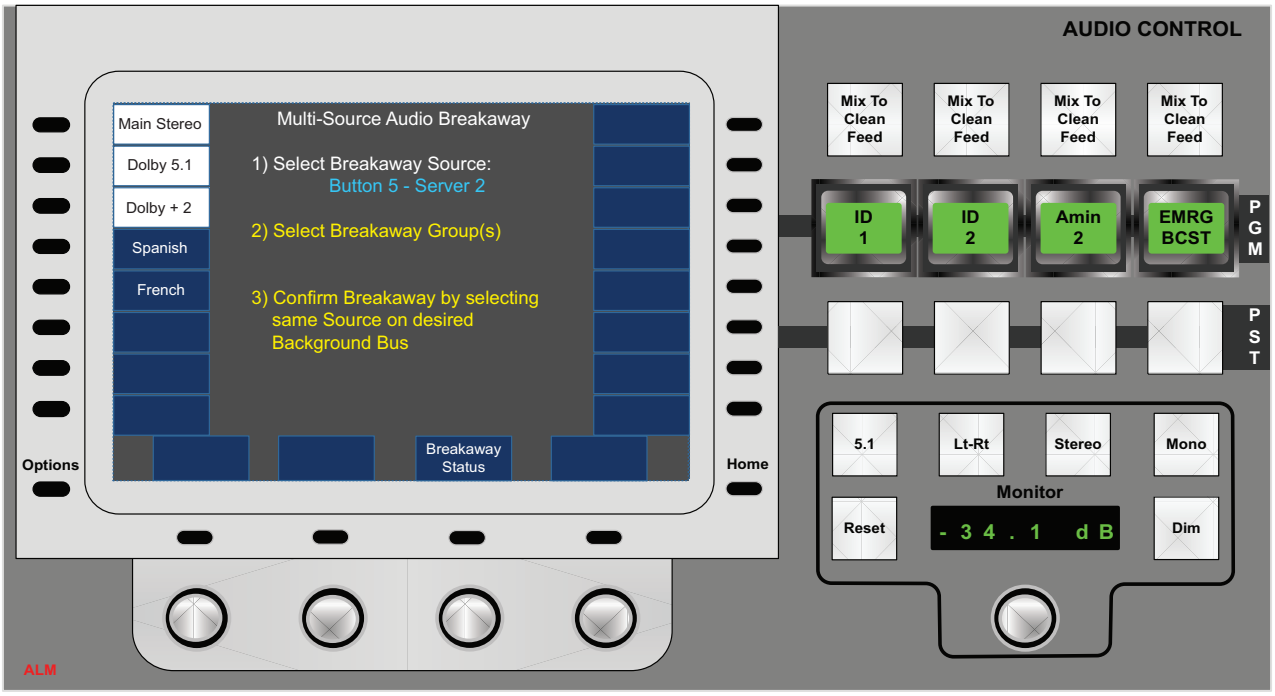
The 16 soft buttons (eight on the left side and eight on the right side) are labeled with the Audio Input Set audio group names associated with the source selected in Step above.

4. Select the desired group(s) to be broken away by pressing the black button next to the desired group name(s).

The group name label soft button for each selected group is highlighted. Pressing the black button next to an already selected group deselects that group. As one or more groups are selected, the screen will be similar to the one shown in Figure 32.

Note In the example in Figure 32, the Main Stereo, Dolby 5.1 and Dolby + 2 groups from the Server 2 source will be broken away and will be switched. The Spanish and French groups will not be switched.

Figure 32. Multi-Source Audio Breakaway - Confirm Breakaway Screen

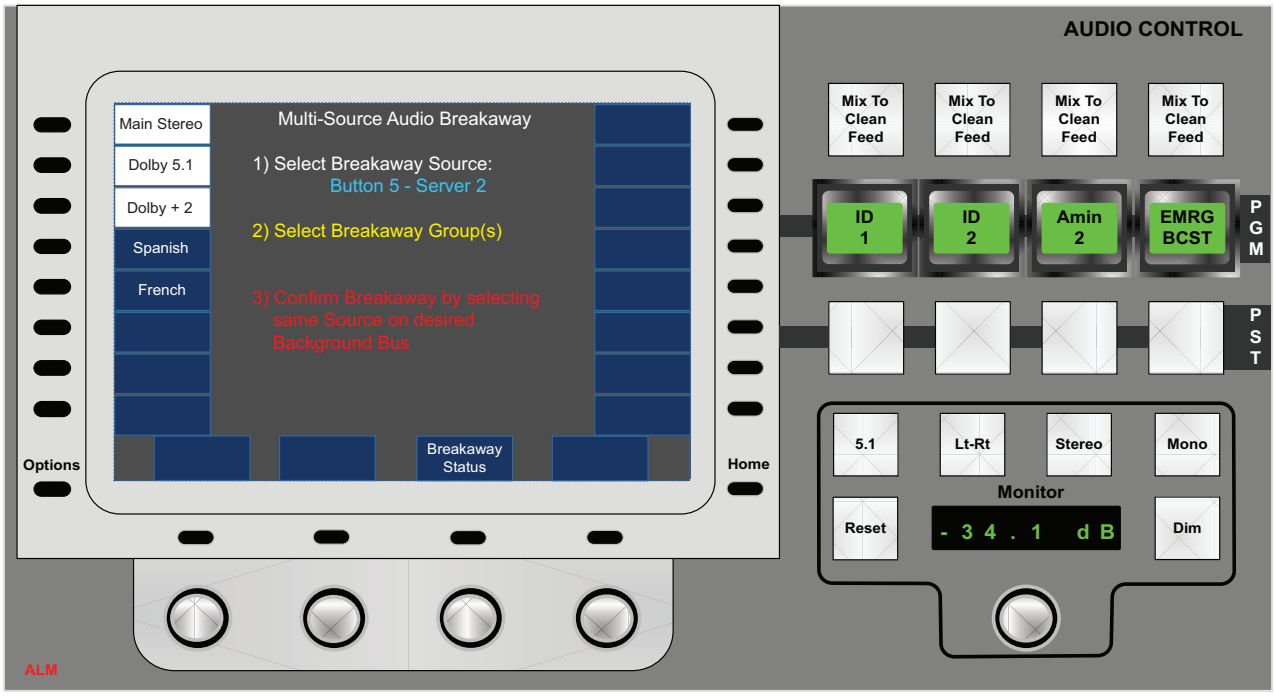


5. To confirm (execute) the breakaway, press the background bus button (on the PGM, PST or AUX bus) that corresponds to the source that appears highlighted beneath Step 1 in the *Multi-Source Audio Breakaway - Confirm Breakaway Screen*.

If any source button on the background busses is pressed other than the source highlighted beneath Step 1 in the *Multi-Source Audio Breakaway - Confirm Breakaway Screen*, the breakaway will not be executed and the *Multi-Source Audio Breakaway - Confirm Breakaway Error Screen* in Figure 33 will appear with Step 3 highlighted in red to indicate the error condition.

To correct the error condition, select the correct source as indicated under step 1 in the screen.

Figure 33. Multi-Source Audio Breakaway - Confirm Breakaway Error Screen



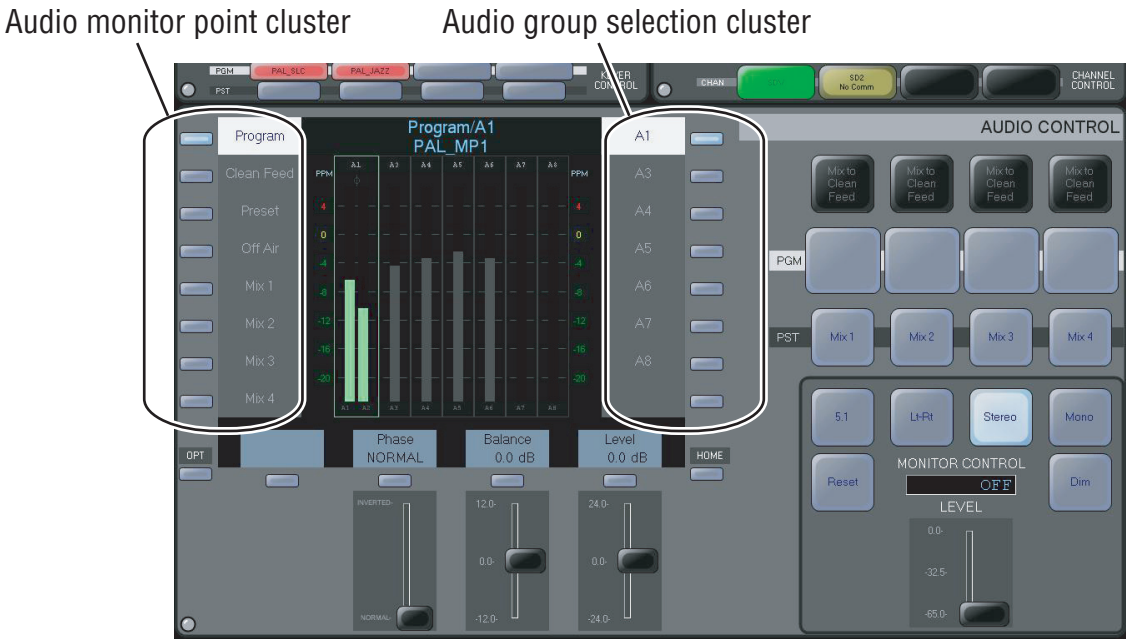
6. Release the Audio Source Control button.

The Audio Source Control button illumination will be extinguished and the Audio Control panel display will return to the previously active audio control screen.

Note If a breakaway is active on the PGM, PST or AUX bus, selecting a different source on the same bus (without the Video or Audio Source Control button depressed) will result in the de-selection of all breakaways on that bus and the selection of the “as configured” desired source. If a breakaway is desired with the new source, the steps above must be repeated.

Audio Controls

Figure 34. Audio Control Sub Panel (GUI Display)

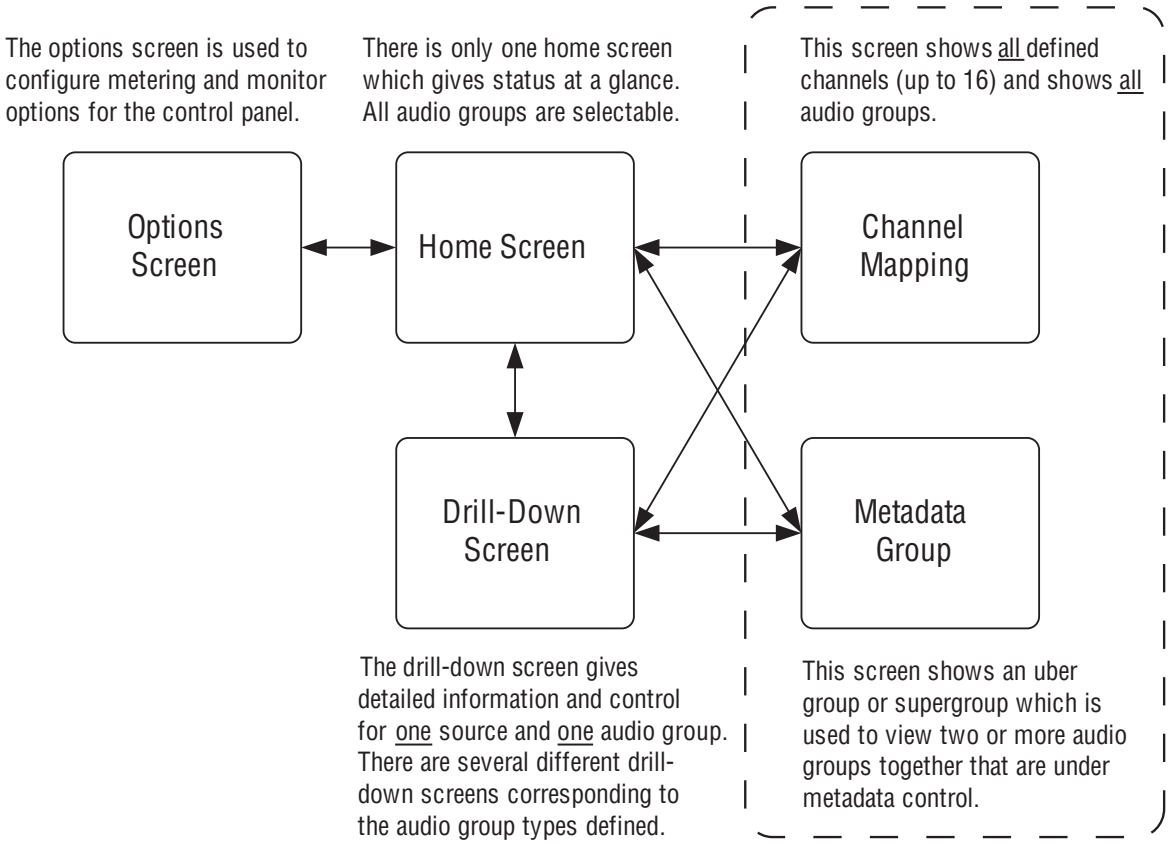


Introduction

The Audio Control sub panel combines monitoring and control of all audio functions into a single panel. This panel is designed using the "audio groups" concept to simplify the handling of multiple audio channels available in the Maestro product (the "audio groups" concept is explained in detail in the software configuration section of the Installation and Service manual). This panel implements monitoring of several different points on the Maestro Processor, the control of audio mix-overs, audio monitoring, and level metering.

Several different screens are used to display only that information needed for specific functions: the home screen, the drill-down screens, the option screen, the channel mapping screen and the metadata screen. In versions prior to 1.5, only the home screen, the drill-down screens, and the option screen were implemented. The channel mapping screen is included in version 1.5 and above. The Metadata screen is yet to be implemented. Figure 35 shows the organization of the various display screens for the audio panel.

Figure 35. LCD-VGA Display Screen Organization (dashed line indicates future screens)



The Home Screen

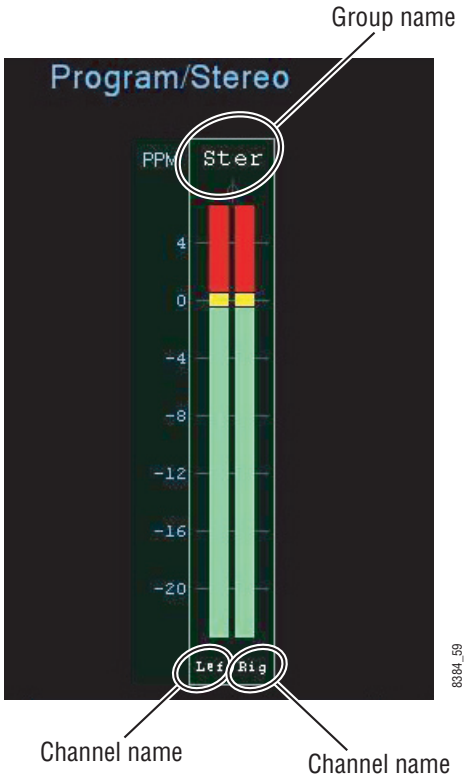
The home screen is the top level screen and is intended to be used for 95% of all operations. The left side soft buttons select the monitor point in the Maestro signal path. The right side soft buttons select the audio group desired. The soft buttons at the bottom provide level control and other functions that can appear on a home screen corresponding to the audio group selected.

Note The home screen can be accessed at any time by pressing the dedicated soft button in the lower right corner of the VGA display labeled **Home**.

At the top of the screen, a title is displayed in text that is the combination of the monitor point selected by the soft-buttons on the left side and the audio group selected on the right side. This text is displayed as "Monitor Point / Audio Group." On a second line of text, located directly beneath the previous text is displayed the source name for the audio group selected. This display is redundant in a sense because some button elsewhere on the panel can show the same information, but this text appears as a title to the meter display to help the operator keep track of where they are when navigating through the audio functions.

In the center of the screen will appear a bar-graph meter display. This display is configured with the **Opt** button (see page 95). The default is to display all defined channels of audio for all audio groups, with borders showing the audio groups around the meters. These borders are highlighted for the audio group selected on the soft buttons at the right of the VGA screen. Just under the top edge of the border but above the bar-graph, the group name is displayed. See Figure 36.

Figure 36. Detail of Audio Panel, Showing Example of Group and Channel Names for Stereo Group



The scale displayed with the meters is also selected in the options screen, either VU or PPM. A phase symbol is displayed above any pair of meters defined as a stereo pair in the configuration tables. This symbol lights up Red when an out-of-phase condition is detected in the hardware.

Below each bar graph is a label of the channel. This label is an abbreviation of the channel name.

The source of the channel names is the Channel Name column of the Audio Output table.

Note Due to space limitations, these names are likely to be truncated on this display.

Audio Monitor Point Cluster

The eight soft buttons on the left side of the VGA display are used to select the monitor point in the Maestro audio processing hardware. The names in the soft buttons are system-generated (fixed). In a sense they can be thought of as outputs or buses but in reality they monitor the input source parameters of the source currently feeding the monitor point displayed on the soft button label. The audio signal parameters displayed and monitored is the combination of the monitor point selection and the audio group selection. The exception to this rule is the Off Air input which has no associated source and parameters. The Off Air input is fed directly into the Maestro rear panel.

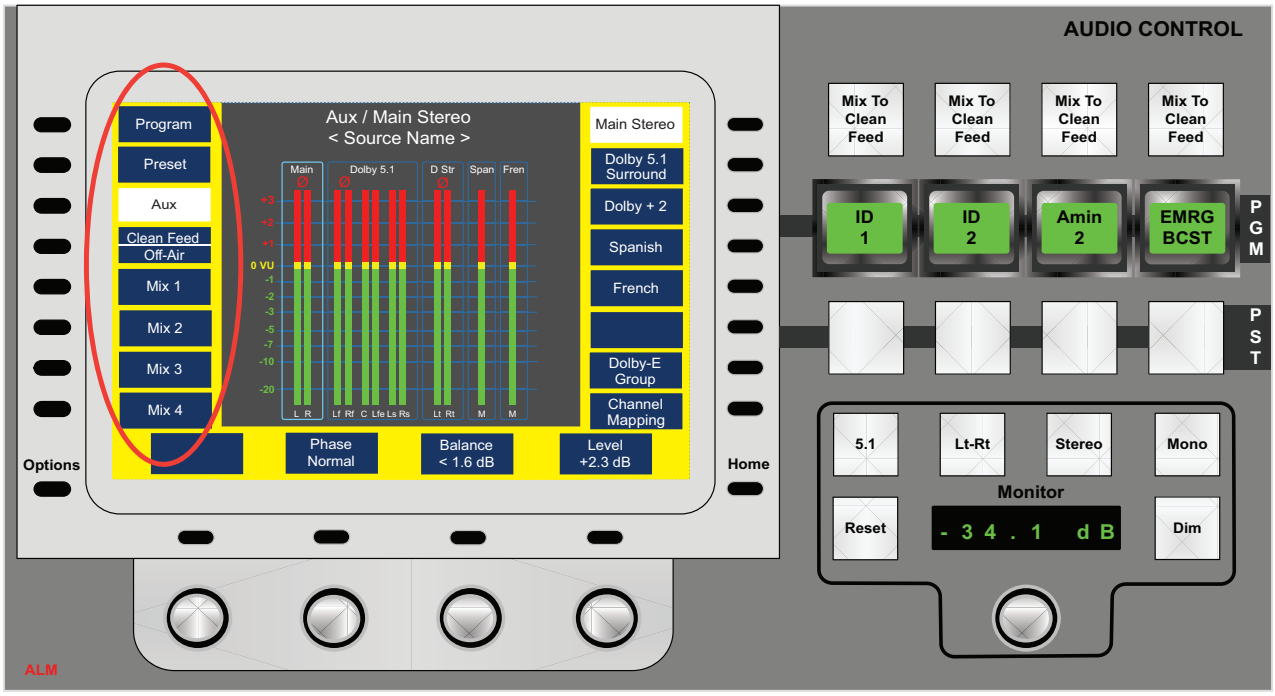
The audio sources that can be selected for monitoring are as follows:

- Program
- Preset
- Aux
- Clean Feed
- Off-Air (Mon In on Maestro rear panel)
- Mix 1, Mix 1 (Pgm), Mix 1 (Pst)
- Mix 2, Mix 2 (Pgm), Mix 2 (Pst)
- Mix 3, Mix 3 (Pgm), Mix 3 (Pst)
- Mix 4, Mix 4 (Pgm), Mix 4 (Pst)

Since there only eight buttons on the left side of the screen to which to assign possible monitor points, Clean Feed and Off-Air are assigned to the same soft button. Pressing the small black button to the left toggles between the two selections.

Monitor Point selections are shown in Figure 37.

Figure 37. Audio Panel - Monitor Point Selection



Program

When the **Program** soft button is selected, the Program output monitor point is selected. The audio monitor is switched to the Program output, as are the meters displayed in the center of the VGA display.

Preset

When the **Preset** soft button is selected, the Preset output monitor point is selected. The audio monitor is switched to the Preset output, as are the meters displayed in the center of the VGA display.

Aux

When the **Aux** soft button is selected, the Aux output monitor point is selected. The audio monitor is switched to the Aux output, as are the meters displayed in the center of the VGA display.

Clean Feed/Off Air

This button toggles between the two selections.

When the **Clean Feed** soft button is selected, the Clean Feed output monitor point is selected. The audio monitor is switched to the program output, as are the meters displayed in the center of the VGA display.

Note In version 1.5 and earlier, the Clean Feed signal is identical with the program output and contains no audio overs. As documented on page 113, version 1.5.1 includes the ability to mix audio overs to the clean feed output

When the **Off Air** soft button is selected, the Off Air Input monitor point is selected. The Off Air input is a dedicated rear panel input on the Maestro Processor and has only eight channels arranged in four AES pairs. Normally, the eight channels follow the same audio group assignments as the first eight channels defined in the Audio Output table.

Mix 1

When the **Mix 1** soft button is selected, the source assigned to the first **Mix** button located to the right of the VGA display is selected and displayed, and monitored (counting left-to-right).

Pressing the **Mix 1** soft button a second time will display Mix 1/(PGM). In this mode the program bus is monitored, with the mix-over ratio appearing on the left-most position along the bottom of the VGA display. The control allows the user to adjust the mix-over ratio while monitoring the actual mix on the Program bus. This is normally not done as it is preferred to make level adjustments on Preset and transition the mix to Program.

Pressing the **Mix 1** soft button a third time will display Mix 1/(PST). In this mode the Preset bus is monitored, with the mix-over ratio appearing on the left-most position along the bottom of the VGA display. The control allows the user to adjust the mix-over ratio while monitoring the actual mix on the Preset bus.

Mix 2 / Mix 3 / Mix 4

These buttons operate the same as the **Mix 1** button described above.

Audio Group Selection Cluster

The eight soft buttons on the right side of the VGA display are used to select the audio group being monitored, controlled and metered.

Note Audio groups throughout this discussion refer to user-defined audio channel groupings and not AES or embedded audio groups. User-defined groups are sets of audio channels that are logically grouped and adjusted together. Examples are mono channels (single audio channel, stereo pairs (two audio channels) Dolby 5.1 surround (six audio channels), etc.

The source of the group names is the Group Name column of the Audio Output table.There can be anywhere from 1 to 16 different audio groups in a Maestro system. Only one audio group at a time can be selected. If more than six audio groups are defined, then the bottom-most button provides page switching.

In addition, the meter displays a highlighted border around the channels assigned to each audio group to draw the eye to the correct meters.

The primary difference in home screens is that, when selecting different audio groups, the level controls beneath the meter display change depending upon the audio group type. For example, in a mono group, only a level control is presented. For a stereo group, a level control, a balance control, and a phase inversion control are presented. In a 5.1 surround-type group, only a level control is presented. In a Dolby E pass-through audio group, all controls are inhibited.

Pressing a group button a second time after selection causes the drill-down screen to appear for the respective audio group. These are discussed in detail below.

In version 1.5.1, four types of audio groups are supported, and the home screen changes depending upon which type of audio group is selected. They are:

Mono Groups (Fully Supported)

A mono audio group is a single channel of audio.

Stereo Groups (Fully Supported)

A stereo audio group is a pair of audio channels handled as a stereo pair. All audio functions defined in the home screen and drill-down screens are fully supported.

Version 1.3 added the ability to automatically detect Dolby E or other non-audio signals in the Maestro Processor. When a Dolby E signal is presented to the Processor, the signal is handled as a stereo pair, but with gain, mixing and other processing functions disabled. All audio data must be passed through the Processor with no alteration for a Dolby E signal to not be damaged. This means that no transition will be performed but a cut transition will be forced during the video vertical interval.

Dolby E Pass-Through Groups (Partially Supported)

A Dolby E pass-through group is a pair of audio channels handled as a stereo pair, but with gain, mixing and other processing functions disabled. All audio data must be passed through the Maestro processor with no alteration for a Dolby E signal to not be damaged. In a Dolby E group that is set to be in Force Pass-through mode, all controls are permanently inhibited.

Note If you choose to implement a full-time Dolby E pass-through audio group, we recommend that you define it as a Stereo Audio group type and then enable the “Force Pass-through” option in the Audio Output tables for the left and right audio channels. This mode will inhibit the audio controls, but will alert the operator that a Dolby E signal is present by turning the audio group button RED. Groups defined as Dolby E pass-through do not status correctly.

Dolby 5.1 Surround Groups (Partially Supported)

A Dolby 5.1 surround audio group is defined as three pairs of audio channels arranged in the following format:

Table 1.

Channel	Name
1	Left front
2	Right front
3	Center
4	LFE (Low Frequency Effects)
5	Left surround
6	Right surround

These channels are switched, mixed, faded, monitored and metered as a single audio program. Adjusting the level control will affect all six channels simultaneously. Six channel mix-overs are also possible for this group type. Normally, if surround signals are not present, the two front channels act as a normal stereo pair. Signals can be mapped into the Dolby 5.1 surround group using the Audio Input tables or remapped on-the-fly using the drill-down screens (See discussion below on drill-down screens).

If a Dolby E signal is applied to any of the audio pairs of the a Dolby 5.1 surround group, it will be detected and the Maestro Processor will pass the signal intact on that pair while turning the audio group soft button RED as it does for stereo group types.

Note The functions described for Dolby 5.1 drill-down screens (page 89) are functional only for Dolby 5.1 audio groups that are mapped 1:1 in the Audio Input tables. If the Audio Input tables are used to map other channels into the Dolby 5.1 audio group output, the drill-down remapping functions are not functional even though the soft buttons appear on the left side of the VGA display. This will be corrected in a future software release.

Level Controls Cluster

Located below the meter display is the level controls cluster. There are soft buttons and labels associated with each control. These controls are specific to an audio group type and will change depending upon which audio group type is selected in the audio group selection cluster.

The right-most position is reserved for audio level or gain control regardless of the audio group type.

The left-most position is reserved for mix-over level control regardless of the audio group type selected. The name of the function assigned to each control is shown on the soft label above the control. A reset or default button is located directly above the control which sets the control to the default value.

On the GUI display, the controls are blanked out or removed if they are not available for use for a particular audio group type. On the hardware control panel, the soft display directly above the control is blanked out when the control is unavailable.

Status Display

Above the audio meters is a text status display. The first line always shows <Monitor Point> / <Audio Group>. The second line shows the status of the Maestro input source name that is selected on either the Program or Preset buses or the audio mix-over Program or Preset bus. Everything that is controlled, monitored, or metered by this panel is a combination of these three things.

Meter Displays

The home screen meter display is an essential part of the home screen. The number of meters is determined by the number of audio groups configured. Normally, all the configured audio groups are displayed with a border highlighted around the audio currently selected to be controlled, monitored, and metered. The screen automatically resizes the meter display while displaying the total number of audio channels centered in the screen.

Drill-Down Screens

A drill-down screen is a close up view of a single audio group. This screen presents more options that are not available on the home screen. Generally, this is done by changing the meter display to show only the channels in the selected audio group, and by replacing the monitor point cluster of soft buttons with options for remapping the audio channels in the audio group. The background color is also changed to a dark blue to help the user identify a drill-down screen as opposed to a home screen. The drill-down screen is accessed by pressing the desired audio group button a second time after selecting it.

In version 1.3 and above there are three different drill-down screens available corresponding to mono, stereo, and 5.1 surround audio group types. Future versions will incorporate more audio group types and more features in the drill-down screens themselves. The following is a quick explanation of the three drill-down screens currently available.

Mono

The mono drill-down screen is the simplest of all. Since for mono signals all that is possible is a simple level control, that and a single level meter is all that is available.

Stereo and Dolby E Pass-Through

For a Stereo audio group, the drill-down screen provides a stereo pair of level meters, audio level control for gain, balance, and phase inversion, as well as channel remapping functions. The soft buttons on the left side of the VGA display are changed to show the remapping functions available. The top-most position is always reserved for the normal or default mapping for the audio group.

The remapping buttons are as follows:

Normal - left input to left output, right input to right output.

Channel Reverse - the left and right inputs are reversed to the output.

Left Only - the left input is sent to both the left and right outputs.

Mono Mix - the left and right inputs are summed and sent to both outputs.

Right Only - the right input is sent to both the left and right outputs.

Future software releases will expand upon the options and displays in the stereo drill-down screens for stereo audio groups.

If a Dolby E or other non-audio type signal is presented to the Maestro Processor, the level controls as well as the remapping buttons are inhibited. The audio group button is turned red, and the level controls are inhibited and display "No Adjust."

5.1 Surround

Note The functions described below for Dolby 5.1drill-down screens are functional only for Dolby 5.1 audio groups that are mapped 1:1 in the Audio Input tables. If the Audio Input tables are used to map other channels into the Dolby 5.1 audio group output, the drill-down remapping functions are not functional, even though the soft buttons appear on the left side of the VGA display. This will be corrected in a future software release.

For a surround audio group, the drill-down screen provides three pairs of level meters, an audio level control for gain, and channel remapping functions. The soft buttons on the left side of the VGA display are changed to show the remapping functions available. The top-most position is always reserved for the normal or default mapping for the audio group.

There are three different modes or remapping models available for 5.1 surround audio group types. These are selected in the Audio Options table during configuration. These three modes differ in how monophonic signals are mapped to the surround outputs. Sometimes this functionality is called up-mixing, in that an audio group of signals is mapped to a larger number of output channels. Down-mixing usually refers to mapping a large number of audio channels into a smaller number of output channels.

The three modes are Center Channel Mono Mode (Default), Two-Channel Mono Mode, and Three-Channel Mono Mode.

Center Channel Mono Mode (Default)

This version maps the 5.1 channels normally, but favors the center output channel of the group when mono type signals are mapped to a surround group. The difference between this mode and the others is that when mono signals are presented, the drill-down selections on the control surface will map them to the center channel. In addition, when a mono down-mix of surround is selected it also maps the audio to the center channel.

The remapping buttons for this mode are as follows:

Normal - All six input channels are mapped to the six output channels 1:1.

Stereo Only - The first audio pair of the surround group is mapped to the left front and right front outputs and all other input channels are muted. This mode is intended to be used when stereo sources must be up-mixed to the surround outputs.

Left Only - The left front channel is mapped to the center output channel. All other channels are muted. This mode is intended to be used when a mono left-only audio source must be up-mixed to the surround outputs.

Center Only - The center channel is mapped to the center output channel. All other channels are muted. This mode is intended to be used when a mono center-only audio source must be up-mixed to the surround outputs.

Right Only - The right front channel is mapped to the center output channel. All other channels are muted. This mode is intended to be used when a mono right-only audio source must be up-mixed to the surround outputs.

Stereo Mixdown - The surround audio is mixed-down into a Left-only/ Right-only stereo mix and sent to the left front and right front output channels only. All other channels are muted.

Mono Mixdown - The surround audio is mixed-down into a mono signal and sent to the center channel output only. All other channels are muted.

Two-Channel Mono Mode

This version maps the 5.1 channels normally, but favors the left and right front channels of the group when mono type signals are mapped to a surround group. The differences between this mode and the others is that when mono signals are presented, the drill-down selections will map them to both speakers of a stereo pair leaving the center channel silent. In addi-

tion, when a mono down-mix of surround is selected it also maps the audio to both the left and right front channels.

The remapping buttons for this mode are as follows:

Normal - All six input channels are mapped to the six output channels 1:1.

Stereo Only - The first audio pair of the surround group is mapped to the left front and right front outputs and all other input channels are muted. This mode is intended to be used when stereo sources must be up-mixed to the surround outputs.

Left Only - The left front channel is mapped equally to the left and right front output channels. All other channels are muted. This mode is intended to be used when a mono left-only audio source must be up-mixed to the surround outputs.

Center Only - The center channel is mapped to the left and right front output channels. All other channels are muted. This mode is intended to be used when a mono center-only audio source must be up-mixed to the surround outputs.

Right Only - The right front channel is mapped to the left and right front output channels. All other channels are muted. This mode is intended to be used when a mono right-only audio source must be up-mixed to the surround outputs.

Stereo Mixdown - The surround audio is mixed-down into a Left only/ Right only stereo mix and sent to the left-front and right-front output channels only. All other channels are muted.

Mono Mixdown - The surround audio is mixed-down into a mono signal and sent to the left and right front output channels. All other channels are muted.

Three-Channel Mono Mode

Some users prefer to have the fuller sound created when all three front speakers reproduce a monophonic signal. This mode maps the 5.1 channels normally, but favors all three front channels of the group when mono type signals are mapped to a surround group. In addition, it creates a center channel from a stereo pair. The difference between this mode and the others is that when mono signals are presented, the drill-down selections on the control surface will map them to all three front channels.

The remapping buttons for this mode are as follows:

Normal - All six input channels mapped to the six output channels 1:1.

Stereo Only - The first audio pair of the surround group is mapped to the left-front, center, and right-front outputs; all other input channels are muted. A mono sum of the stereo signal is created and sent to the

center channel output so that there is always something coming from the center channel. This mode is intended to be used when stereo sources must be up-mixed to the surround outputs.

Left Only - The left front channel is mapped to the left front, center, and right front output channels with the center channel favored. All other channels are muted. This mode is intended to be used when a mono left-only audio source must be up-mixed to the surround outputs.

Center Only - The center channel is mapped to the left front, center and right front output channels with the center channel favored. All other channels are muted. This mode is intended to be used when a mono center-only audio source must be up-mixed to the surround outputs.

Right Only - The right front channel is mapped to the left front, center and right front output channels with the center channel favored. All other channels are muted. This mode is intended to be used when a mono right-only audio source must be up-mixed to the surround outputs.

Stereo Mixdown - The surround audio is mixed-down into a Left only/ Right only stereo mix and sent to the left front and right front output channels only. All other channels are muted.

Mono Mixdown - The surround audio is mixed-down into a mono signal and sent to the left front, center and right front output channels with the center channel favored. All other channels are muted.

Future software releases will expand upon the options and displays in the surround drill-down screens for 5.1 audio groups.

If a Dolby E or other non-audio type signal is presented to the Maestro Processor, the level controls as well as the remapping buttons are inhibited. The Audio group button is turned red, and the Level controls are inhibited and display “No Adjust.”

Audio Monitor Controls

The audio monitor controls allow the user to listen to various audio sources in the Maestro Processor. The audio heard is determined by the audio monitor point selected, the audio group selected, and the source being controlled, monitored, and metered. The audio monitor controls have no effect on the Program and Preset outputs.

Four different monitor modes are supported by the audio panel as selected by the four buttons located directly above the audio monitor level control and display. The Processor will automatically map the audio source selected to the monitor speakers based upon one of three models. The models are configured on the Audio Options table using the Configuration Editor.

These models are as follows:

- 2-Channel stereo
- 5.1 Surround with Mono in Center
- 5.1 Surround with Mono in L-R

The user should select from the above choices that best matches their desired operation. Each of these models automatically map the possible audio group types to the monitor speakers based upon the selection of the listening mode buttons. So for example it is possible to listen to a 5.1 surround source in full surround (5.1), or in Left total/Right total (Lt/Rt) or in normal stereo (Stereo), or in mono mode.

5.1 Mode

In this mode the Maestro Processor automatically maps the first six channels of the audio source selected to the first six monitor outputs if the source is a 5.1 surround audio group type. For stereo or mono audio group types, the Processor will map the signals to the speakers as normal stereo or mono sources.

If the Maestro is configured with only a stereo pair of monitor speakers, then all 5.1 sources are mixed down to normal stereo.

Lt-Rt Mode

In this mode the Maestro Processor will create a Left total/Right total mixdown of surround audio group types, or pass normal stereo signals to the left and right speakers.

Stereo Mode

In this mode the Maestro Processor will create a normal Stereo mixdown of surround audio group types, or pass a normal stereo version of the audio source selected (regardless of the original format unless it is a mono source) and present it to the left and right speakers.

Mono Mode

In this mode the Maestro Processor will create a monophonic version of the audio source selected regardless of the original format and present it to either the center speaker or the left and right speakers depending upon the Monitor Speaker Configuration selected.

Monitor Level Control

A level control is located directly below the eight-character readout. This is the volume control for the monitor outputs and operates as an attenuator with 0.5 dB resolution. The eight-character readout is used to display the

monitor level. The range of the control is from OFF or MUTE to 0.0 dB. At 0.0 dB the monitor outputs pass the selected source without attenuation and all values less than that are displayed as "-XX.X dB." Normal monitoring level should be between -20 dB and -12 dB for best performance.

An alternate display mode is available in the Audio Options table, in the Monitor Level Display column. In this format, the readout displays a positive number that is meant to be calibrated for actual SPL (Sound Pressure Level). This feature is not implemented in version 1.5.1 and earlier, but will be added in a future release.

Dim

The **Dim** button is used to drop the output level of the monitor output by a preset amount. This amount defaults to 20 dB but can be changed in the Audio Options table in Default Dim Value column. The **Dim** button functions as a toggle ON/OFF. The amount of attenuation will be displayed in the eight-character readout. When **Dim** is enabled, the value is displayed and the monitor audio will decrease by the Dim amount. When **Dim** is disabled, the value in the display and the monitor audio will return to the previous value.

Reset

The **Reset** button is used to reset the default monitor level. Many users prefer to monitor audio at a preset and calibrated level. This value allows the user to return to that level from any other level, mute, or dimmed value. The default is -20 dB but is configurable in the Audio Options table in the Default Monitor Reference Level column. We recommend a value between -12 dB and -20 dB for best performance.

Option Screen

The **Opt** button, located in the lower left corner of the VGA display, is used to configure certain local options for the control panel. The options screen can only be accessed from the home screen. The **Opt** soft buttons are as follows:

Phase Display (Default ON)

The **Phase Display** button enables the phase indicator, a Greek letter "ϕ" located above each stereo pair of bar-graph meters.

Display All Groups (Default) and Monitor Follow

The **Display All Groups** button works with the **Monitor Follow** button located below it. When **Display All Groups** is enabled, the home screen will show meters for all defined audio groups. In Monitor Follow mode, the home screen meter display will show only meters for the selected audio group being monitored, controlled, and metered.

PPM Scale (Default) and VU Scale

The PPM scale and the VU scale for the level meters are selected here. This option allows the operator to select at the control panel which kind of meter display is desired. The scale or reference point of the PPM and VU meters is independently adjustable using the Audio Options table.

Brightness

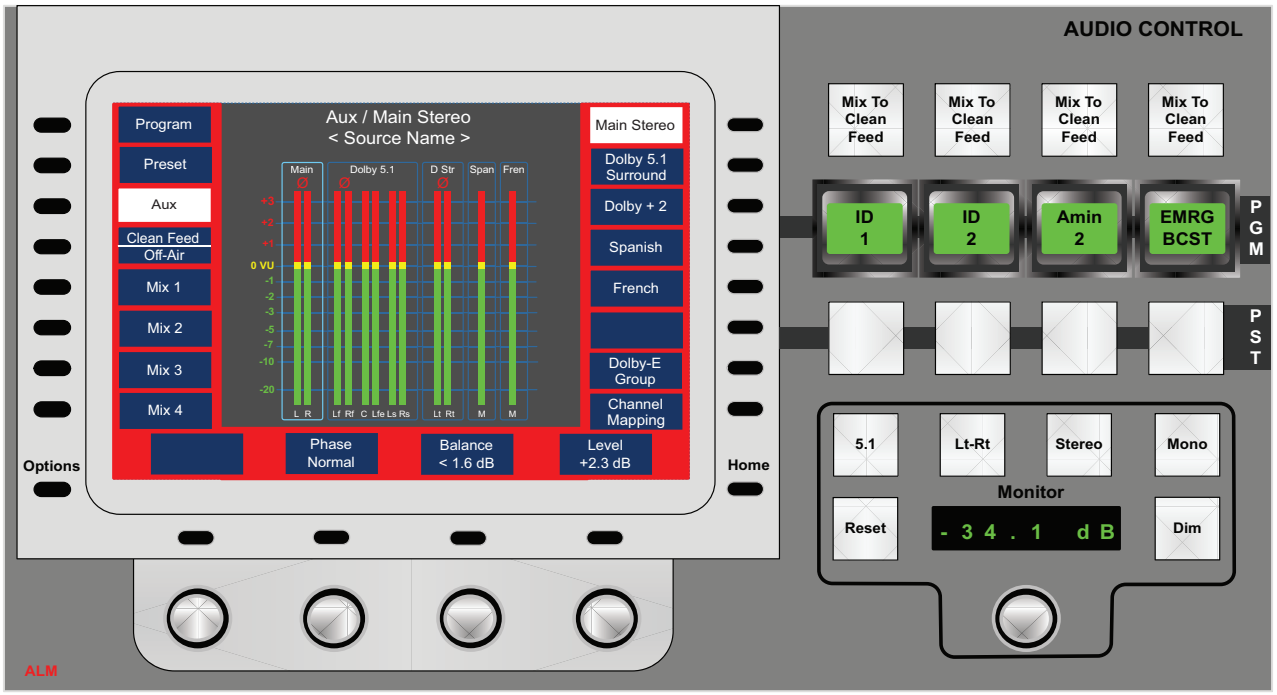
A Brightness control is located in the lower left corner of the VGA display. This control only functions on the hardware control panel.

Audio Monitor Source Tally

In the Audio Control panel screen, the “U” - shaped area around the left and right edges and bottom of the screen in which the soft buttons appear is called the “button area.” In many Audio Control screens, this button area now has a background color that indicates whether or not the source currently active on the selected audio monitor point is contributing to Program content, Preset content or neither.

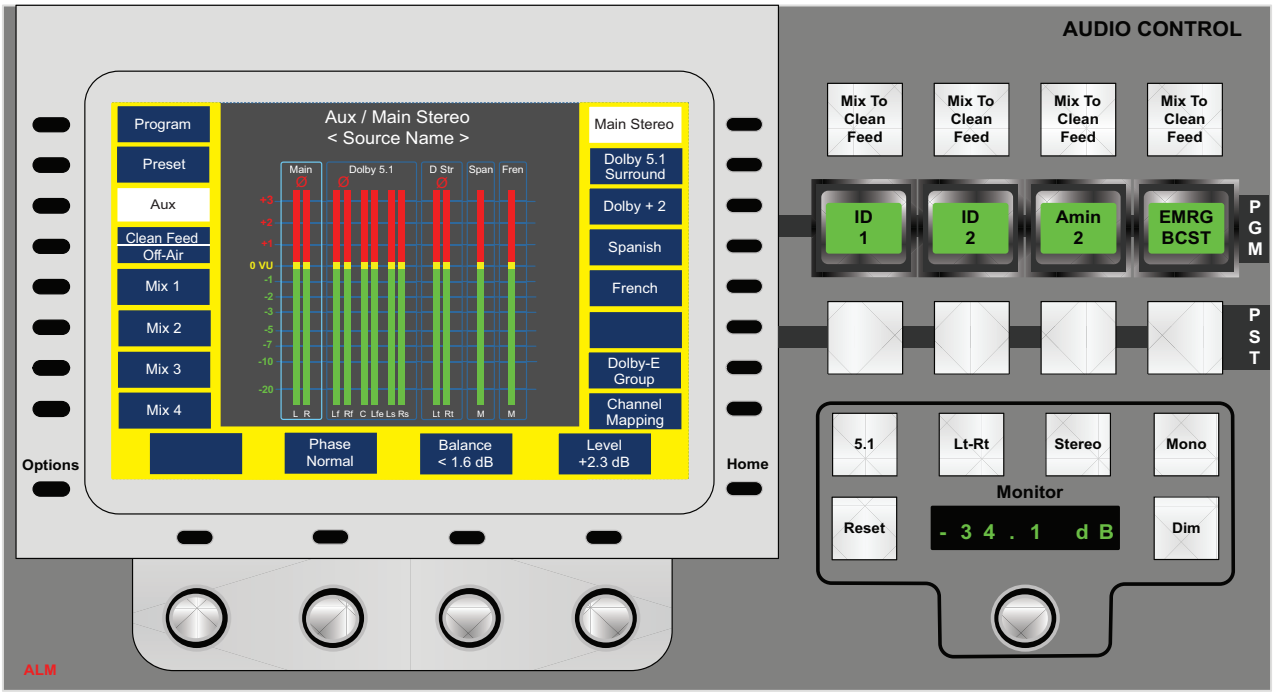
- If the active monitor point source is contributing to Program content, the button area background will be red as shown in Figure 38.
- If the active monitor point source is contributing to Preset content, the button area background will be yellow as shown in Figure 39.
- If the active monitor point source is contributing to neither Program nor Preset content, the button area background will be blue as shown in Figure 40.

Figure 38. Monitor Point Contribution to Program



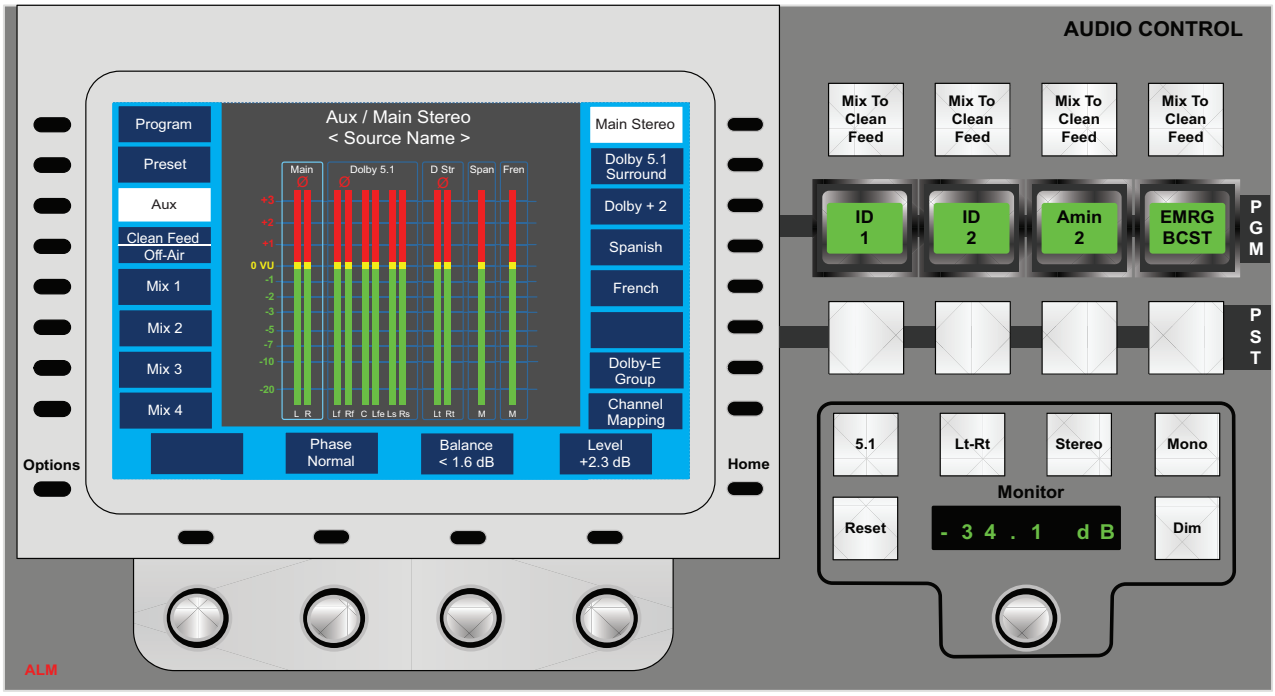
Notice that the selected monitor point is the Aux bus. In the example in Figure 38, the active source on the Aux bus is currently contributing to the Program content (for example, as part of an on-air DVE effect). On the Source Control panel, the button for that source on the Aux bus would also be tallied with red illumination.

Figure 39. Monitor Point Contribution to Preset



Notice that the selected monitor point is the Aux bus. In the example in Figure 39, the active source on the Aux bus is currently contributing to the Preset content (for example, as part of a DVE effect preset to go on air with the next transition). On the Source Control panel, the button for that source on the Aux bus would also be tallied with yellow illumination.

Figure 40. Monitor Point Not Contributing to Program or Preset



Notice that the selected monitor point is the Aux bus. In the example in Figure 40, the active source on the Aux bus is currently not contributing to Program or Preset content. It may have been selected as part of a DVE effect; however, DVE is not currently active. The source is, therefore, not contributing to on-air Program content nor is it preset to go to air on the next transition. On the Source Control panel, the button for that source on the Aux bus would also be tallied with blue illumination.

Note In most cases, the tally color for a source on the PGM, PST or AUX bus will match the button area background color on the Audio Control panel when that bus is the active monitor point. However, under certain circumstances, it is possible that the colors will not match. For example, if a DVE is selected which has an Aux video enter mode and a Pgm audio mode, the PST bus tally color will be blue for any source on that bus; however, if Preset is the active monitor point in the Audio Control panel, the background button color will be yellow. This occurs because the source selected on the PST bus will not be contributing to Program content on the next transition (only AUX and PGM are involved). The audio associated with the Aux source will be contributing to the Program content on the next transition as it will become the active PGM source on the next transition; therefore, Aux audio is currently Preset and the button area background color is yellow.

Dynamic Channel Mapping

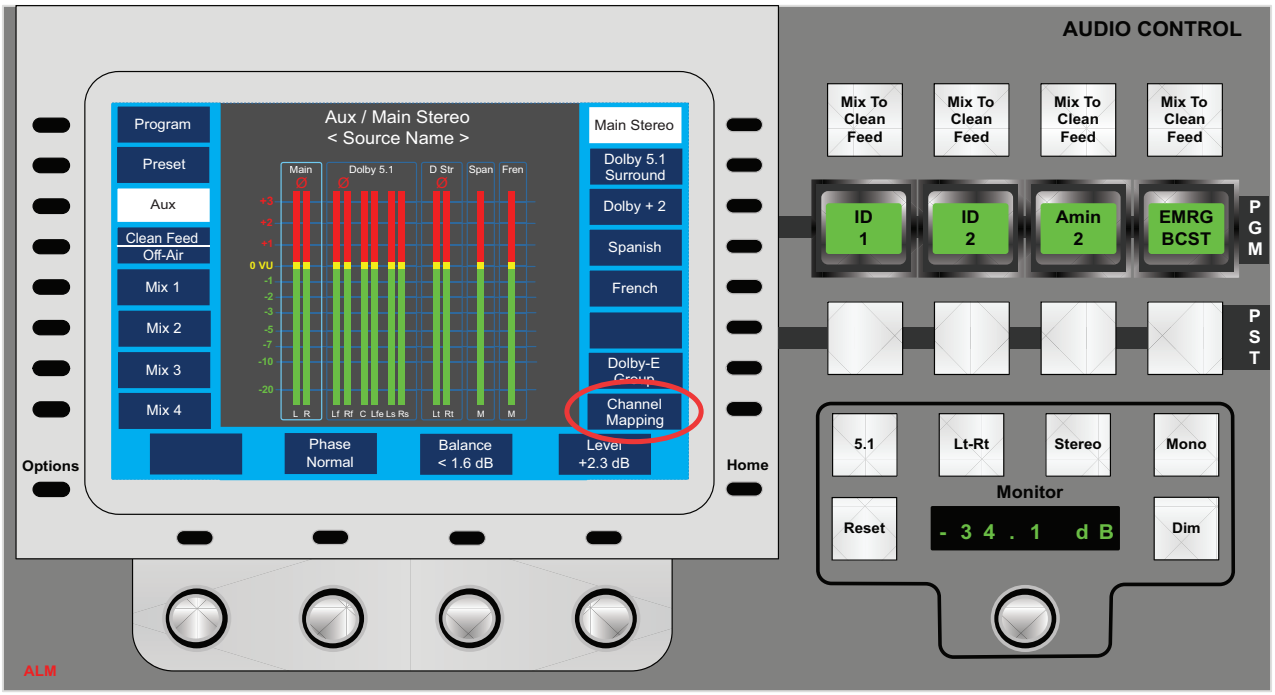
Dynamic channel mapping is the operator-controlled process of mapping audio input groups into audio output groups from the control panel (hardware control panel or GUI).

Static channel maps configured via the Audio Input Set tables in the Maestro Configuration Editor are the default channel maps for their associated sources.

If a predefined mapping between audio input groups and audio output groups does not exist, or, the operator wishes to alter existing static channel mappings, dynamic channel mapping makes that possible.

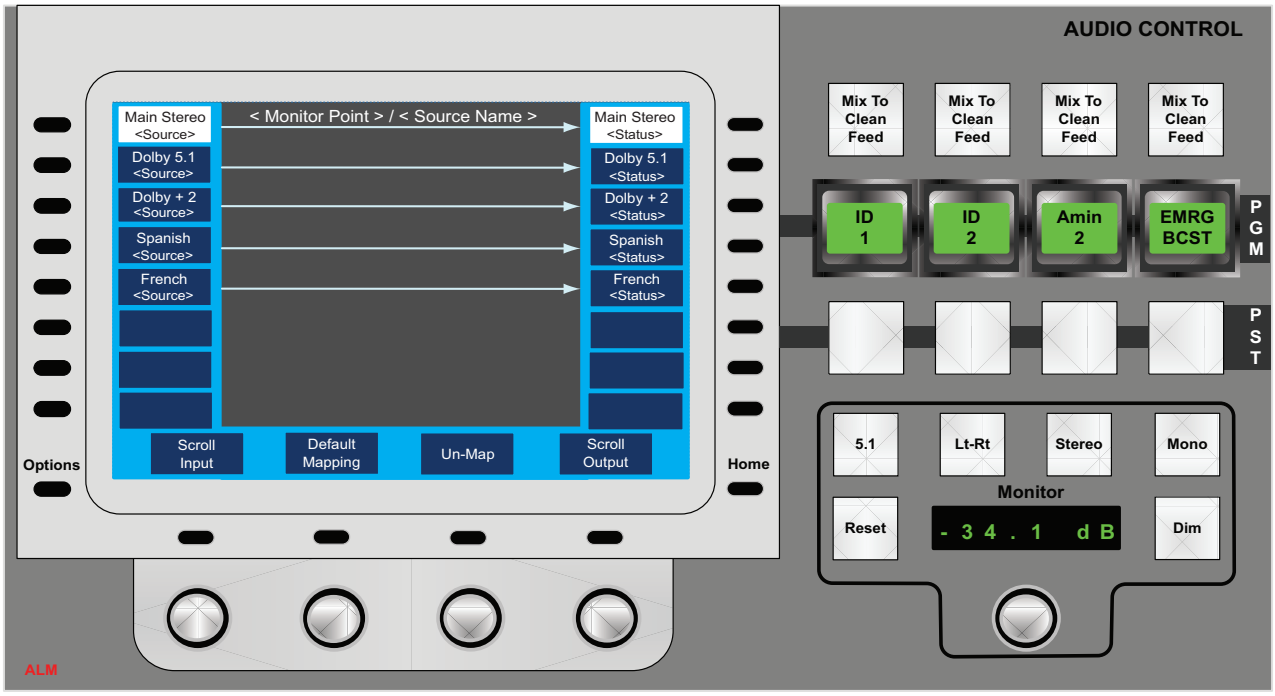
The Channel Mapping screen is accessed by pressing the small black button to the right of the **Channel Mapping** soft button on the Audio Control Home screen as seen in Figure 41.

Figure 41. Audio Control Home Screen - Channel Mapping



When the **Channel Mapping** button is pressed, a screen similar to the one shown in Figure 42 appears.

Figure 42. Channel Mapping Screen



The *Channel Mapping Screen* provides the following information and controls:

- **<Monitor Point> -** Indicates the audio source (Program, Preset, Aux, Clean Feed, etc.) being monitored on the Audio Control Home Screen.

Note The background color behind the soft buttons indicates the status of the audio being monitored. If it is red, it is on-air and contributing to Program content. If it is yellow, it will go to air on the next transition and is contributing to Preset content. If it is blue, it is not currently on-air nor will it be going to air on the next transition. For more information, see *Audio Monitor Source Tally* on page 96.

- **<Source Name> -** Indicates the name/mnemonic of the source whose input group is currently mapped to the monitored output group.
- **Audio Input Group Name and <Source> -** Appears on the left side of the screen. The audio input group name is the first line of text and the mnemonic for the selected source for that group appears on the second line.
- **Audio Output Group Name -** Appears on the right side of the screen. Audio output group names come from the Audio Output Set defined in the Maestro Configuration Editor. The first line of text is the audio group name. The second line of text is the group status. The <Status> line will be blank unless the named audio group is not defined for the selected source.

Note Any audio output group(s) that is not defined for that source, either explicitly or via channel mapping, will be muted upon selection. It will display as "Muted-no map" in the Audio Output Group status line.

- **Scroll Input -** The first knob (from the left) is used to scroll the audio input group names vertically when more than eight group names have been defined. One "click" of the knob will scroll the name up or down depending upon the direction. Turning the knob to the right scrolls the list up. Turning the knob to the left scrolls the list down. Pressing the button above the knob resets the list to the default position in which the first audio group is aligned with the top left button.
- **Default Mapping -** Pressing this button will reset the channel mapping to the Audio Input Set defined in the selected configuration for the selected video source. The knob (second from the left) has no function.
- **Un-Map -** Pressing this button will allow audio output groups to be un-mapped from their associated input groups. The knob (third from the left) has no function. See *Un-Mapping Channels* **on page 105** for details.
- **Scroll Output -** The fourth knob (from the left) is used to scroll the audio output group names vertically when more than eight group names have been defined. One "click"of the knob will scroll the name up or down depending upon the direction. Turning the knob to the right scrolls the list up. Turning the knob to the left scrolls the list down. Pressing the button above the knob resets the list to the default position in which the first audio group is aligned with the top right button.

Channel Mapping Process

Audio channel mapping is performed by executing the following steps:

1. On the Channel Mapping Screen, select an audio input group by pressing the small black button to the left of the desired group name. Selecting a group causes the group name and source label to be highlighted in a light blue color.

Note On the GUI, the soft buttons (group name labels) are used to make selections on the Audio Control panel. On the hardware Audio Control panel, the LCD screen is not a touch screen and only the small black hard button is used to make a selection.

Audio input group selection is mutually exclusive. Only one group at a time may be selected. Selecting a different group will cause the previously selected group to be deselected and the highlight color will extinguish. Pressing the small black button for an already selected group will also cause that group to be deselected.

2. Select an audio output group by pressing the small black button to the right of the desired group name. Selecting the output group causes the following to occur:

   a. The selected audio input group will be mapped to the selected audio output group. This is indicated by a line and arrow from the input group to the output group.

   b. The selected audio output group will be highlighted and the audio monitor will be switched to that group.

   c. The selected audio input group will be deselected and the highlight color will be extinguished.

   If no audio input group is selected before selecting the audio output group, no mapping occurs but the audio monitor switches to the selected audio output group.

Note Channel remapping is a one-to-n relationship. Each audio input group can be mapped to one or more audio output groups; however, each audio output group can be associated with only one audio input group.

3. Repeat Step 1 and Step 2 above until all desired audio channel maps are complete.

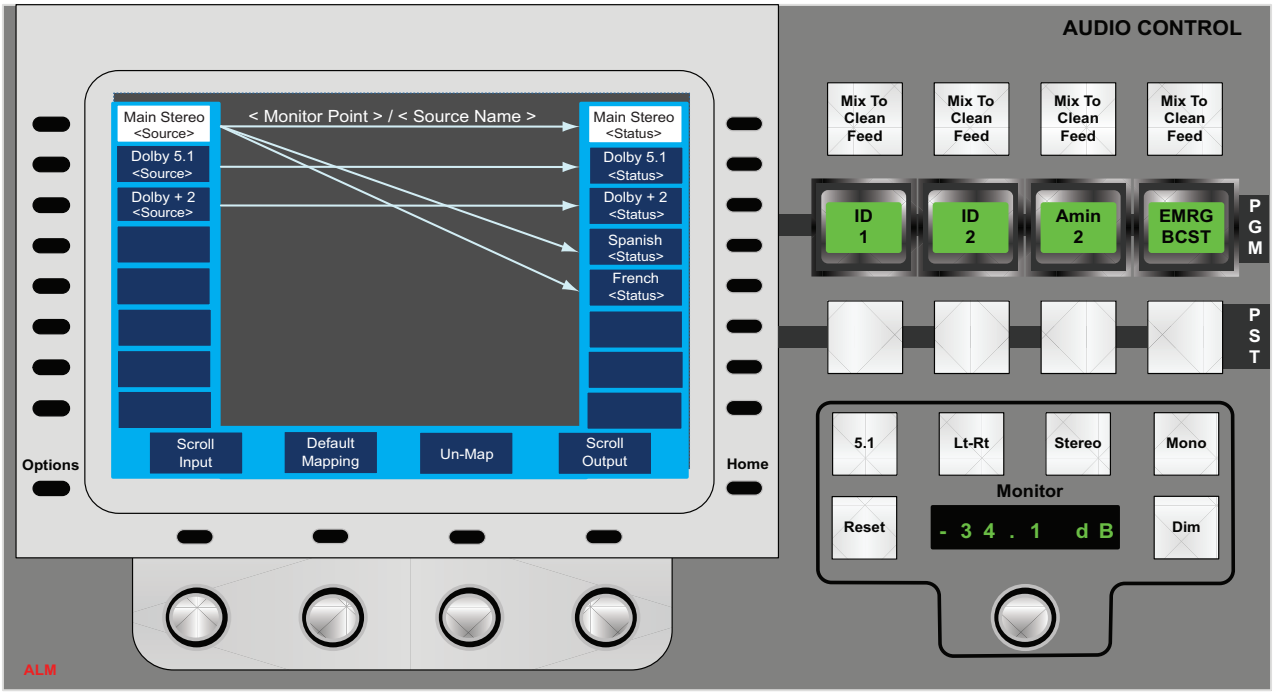
Note Dynamic channel mappings performed while breakaways are active are temporary. These channel maps are not stored and recalled with Source Memory. Dynamic channel mapping performed while breakaways are not active (i.e. audio from a single source) will be automatically stored and recalled as part of Source Memory.

To return to the Home screen on the Audio Control display, press the **Home** button.

Audio Output Group Substitution

Typically, there is a one-to-one correspondence between audio input groups and audio output groups as seen in Figure 42 on page 100. However, it is possible in some cases that an audio input group does not exist for all audio output groups. In this case, it may be desirable to map one input group to several output groups so that an audio signal exists on all output groups. Figure 43 shows an example of this where the "Main Stereo" audio input group is mapped to the "Spanish" and "French" Mono output groups since there are no Spanish and French audio input groups in the source.

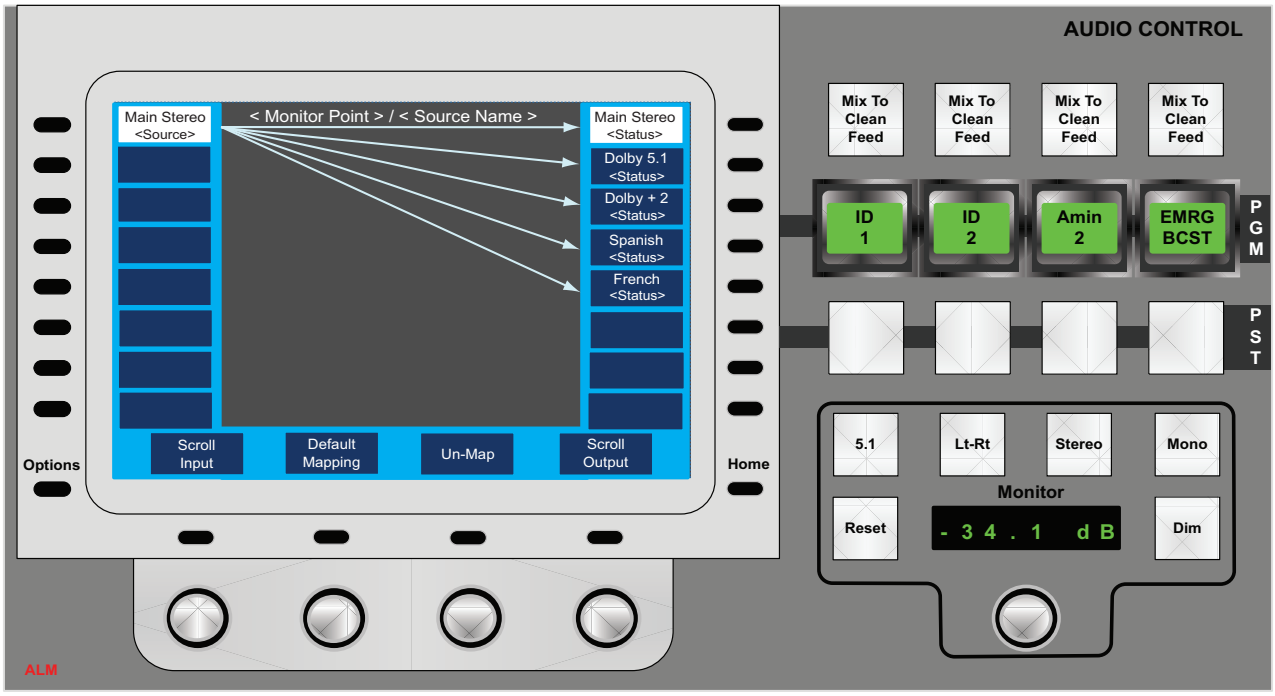
Figure 43. Audio Output Group Substitution



This scenario requires a down mix of the stereo input group to the mono output groups. Given the available audio groups in Maestro (mono, stereo, Dolby 5.1, Dolby 7.1 and Dolby E Pass Through), there is a known set of possible channel mappings and down-mix, up-mix definitions. These mappings are built into Maestro and require no configuration.

Another typical scenario might involve the mapping of a single stereo input group to all output groups which may be mono, stereo or multi-channel surround. Figure 44 is an example of this type of mapping.

Figure 44. Stereo Audio Mixer Source Remapping



In this scenario, both a down mix to mono and an up mix to multi-channel surround groups would be required. These mappings are built into Maestro and require no configuration.

Un-Mapping Channels

If a mapping exists between an audio input group and one or more audio output groups and that mapping is no longer desirable or necessary, it is possible to undo those mappings.

Note Un-mapping channels prior to mapping them is not necessary. Remapping channels automatically un-maps them prior to creating the new channel maps.

To un-map one or more audio output groups from an audio input group the operator performs the following steps:

1. On the Channel Mapping Screen, press the small black button under the **Un-Map** label.

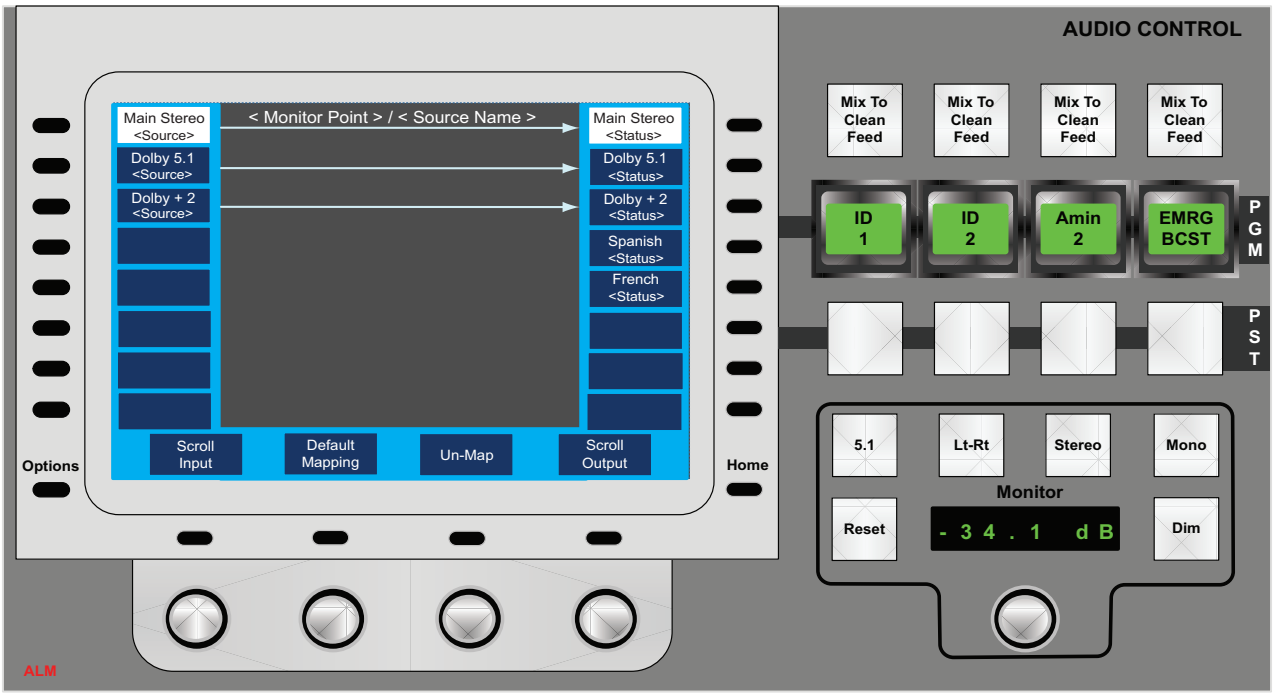
   The **Un-Map** button highlight color changes to red indicating that the Un-Map process has been initiated.

2. Select the audio output group (right side of display) which you wish to un-map from its associated audio input group by pressing the small black button next to the group name label.

   The mapping, as indicated by the arrow from the input group to the output group is deleted. See Figure 45.

3. Repeat Step 1 and Step 2 for all groups you wish to Un-Map.

Figure 45. Un-Mapping Channels



In this example, the Spanish and French output groups (shown in Figure 43 mapped to the Main Stereo input group) have been un-mapped.

Keyer Section

The Maestro can accept up to four key signal inputs. (Each can have an associated “cut” signal if desired.)

The keyers are used to insert video into a Preset source and follow the source when it is transitioned to Program.

Each of these four key signal inputs can be assigned to one (and only one) of four “upstream” keyers, or to one of four “downstream” keyers. The upstream keyers are numbered one through four; the downstream keyers are numbered five through eight.

When the **Upstream** button is ON (by itself), the next transition will affect the upstream keyers **and the background**.

When the **Downstream** button is ON (by itself), the next transition will affect the downstream keyers only (not the background). If a downstream key is inserted, and the operator returns to upstream mode, the key will remain on Air regardless of background changes and upstream key operations.

All keys can be previewed and adjusted before they appear on Air.

When putting a key on air is desired, the key source is assigned to one of the keyers on the Preset bus. Using **Edit**, the key can then be set up as needed. When a transition is performed, the key--with all of the previous setup information--will move to Program.

Key Source Selection

A key source is selected in similar fashion to any other source. The source is entered on the Source Assign keypad as described on page 51.

To assign the key source, a Preset button is pressed (in the Keyer Control group). The mnemonic for the new key source will now appear on the Program button.

Note Because there are eight keyers, but only four Preset key buttons, the **Keyer Bank** (hardware panel) or **Shift** (GUI) button is used to access the downstream keyers (keyers five through eight).

It is possible to insert the key instantly with the appropriate Program button, but normally a transition is performed using the **Take** button.

External/Self Keys

Some types of sources provide an external key or *cookie cutter* signal in addition to their main video (fill) output. These sources, generally character generators, digital video effects units, and graphic systems, generate this signal to provide cleaner keys.

Auto routing configuration

The system can be configured so that when a graphic source is selected the Maestro will automatically select the appropriate key mode (**Key Cut** or external) and, for external mode, route the appropriate key signal to the Maestro keyer.

If Maestro has automatically selected external key mode, you can still select **Key Cut** if desired, but doing so will usually result in an inferior key.

Key Fill

Once a key source has been selected, and external or **Key Cut** (Self Key) chosen, it is necessary to choose the type of key fill desired. If video fill is selected by leaving the **Key Fill** button OFF, the video coming from the key source will be used to fill the key. This is the mode generally used with all key sources except character generators (CG). This mode is also generally used with CGs that can color their own characters.

The matte mode is selected by toggling the **Key Fill** button ON. This mode causes the key to be filled with a color from the internal matte generator instead of with video from the key source.

Note The matte mode is presently limited to black.

Clip and Gain Adjustments

The **Clip** controls adjusts the clip value or the luminance threshold of the keyer, which is the linear type. Adjust this control in conjunction with the keyer **Gain** control so the characters and background are both complete and visible.

Key Setting Memory

The key settings for a particular source follow that source no matter where it goes. For instance, if CG1 is selected on Preset, and the operator adjusts the clip level, that source will have the same clip level whether it is on Preset or Program. Even if another source is selected, when CG1 is selected again the selected clip level will still exist unless it is deliberately changed by the operator.

The key setting memory applies to the following:

- **Clip**
- **Gain**
- **Self Key** (On/off)

When a video source is assigned to a Keyer, and a setting listed above is changed, the setting will remain with that source. This is true even if the source is replaced on the console–whenever the source is re-assigned the settings will be applied.

Key Source Assignment Memory (Board Setup Save/Recall)

The current key inputs ("CG1," etc.) can be saved as set. The set is given a number from 0 to 99, stored, and recalled when needed. See *Save Assignment Set (Board Setup Save/Recall)* on page 118.

Upstream Keyer Operation

The following discussion assumes that **Upstream** is ON and **Downstream** is OFF.

Placing a Key On Air

When the next event is to be a key, the following procedure is recommended:

Select the proper main (background) source on the Preset bus.

If the background source is already on Program, select the same source on Preset.

Use the Source Assign group to select the desired key source as described above. Assign the key source to one of the keyers by pressing PST, e.g., for Keyer 1.

Preview the key by pressing PST again.

Use the Edit button group to select KEY 1. Set up the type of key (**Self**, **Clip**, **Gain**, etc) as described above, watching the Preset monitor.

Perform a **Take** transition. Keyer 1 is now on Program.

When only inserting a key, without changing the main source, a dissolve or cut should be used, and not a fade–or the main source will go to black and back up again. When the transition is complete, the PGM light will go on, and the PST light will go out, indicating the key is now on Program.

- If the next event is the removal of the key which is now on air, perform another transition, and the active keyer will move back to Preset.
- If the next event is from another key source, go to the next section.

Replacing One Key with Another (No Background Change)

Assuming that one keyer is already on Program:

Send a key source to another keyer (e.g. Keyer 2), toggle on the second keyer on Preset. Check (or set up) the key.

When a transition is made, the two keyers will trade places, and the new key will move to Program.

Another key source can now be set up, etc. When the last key is on Program, toggle OFF the Preset key. To remove the last key from Program, perform a transition. Then toggle OFF the Preset key.

Adding One Key to Another (No Background Change)

Assuming that one keyer is already on Program:

Select *both* keys on Preset. Perform a transition.

The same technique can be used to add up to the maximum number of key layers (four).

To remove a key, make sure the Preset button for the key is OFF; then perform a transition.

Changing Background Without Changing Key

To hold a key on Program, select the key's Preset button. A transition to a new source can now be made without changing the on-air the key(s).

Note Upstream keys are unaffected (held on Program with no visual change to the key) by background changes only if the selected transition type is cross-fade or cut. The transition types fade-cut, cut-fade and fade-fade will take the key to black with the background video before re-displaying it on Program

To take out the key, de-select the Preset button and perform a transition.

Downstream Keyer Operation

The down stream keyers can be used to insert "persistent" key(s) that will remain on the Program bus regardless of action taken with the background video and the upstream keyer(s).

When **Downstream** is ON (and **Upstream** is OFF), the next transition will affect ONLY the downstream keyer(s). It will not affect the background signal on Program or the background signal on Preset. This mode is indicated by a red button on the program bus and a purple button on the Preset bus.

Assigning a Source to a Key

In the Keyer Control Panel, use **Shift** to access keyers five through eight. Keys signal are assigned as described above.

Select the key on Preset and adjust as necessary.

Inserting the Key

To place the key on Program, perform a transition.

At this point, the downstream keyers are operated exactly as described above for the upstream keyers. The difference is that the background is not changed during transitions.

Leaving a Downstream Key On Program and Returning to Upstream Mode

Downstream = OFF. **Upstream** = ON. The status of the downstream key is shown by the red tally indicating it is on Program. Transitions will now apply to the Preset and Program buses in the usual way, but the downstream key will remain on Program.

The upstream keyers can also be used as before, again, without affecting the downstream key.

To remove the downstream key, return to Downstream mode and perform a transition.

Operating Up- and Downstream Keyers with a Single Transition

If the **Upstream** and **Downstream** buttons are both lit, the next transition will apply to both upstream and downstream keyers, and will also affect the background. Therefore the **Shift** key should be used to check the status of all

keys (upstream and downstream) to determine what will occur when the transition is made.

Audio Mixer Operation

Note Audio over inputs are AES only; embedded audio for mix overs is not supported. There are two AES audio over inputs on the rear panel and four internal audio mixers. If using a Sonata AES-to-MADI converter, all four audio mixers are available.

Note Audio Mix-Over Controls

Maestro has four independent audio mixers - see note above regarding formats and number of available inputs. The audio inputs defined for audio mix sources can take advantage of input channel mapping in the same way as sources intended for the Program and Preset busses. Channel mapping and the drill-down screens for audio mix over sources function identically to those used in mapping Program and Preset sources.

The mixers are capable of performing an audio mix-over on Preset at the same time as providing a separate audio mix-over on Program. Like the keyers, the mixers can trade places with each transition. This allows an audio mix-over to be set up on Preset and then be transferred to Program with a transition.

Mix Source Selection

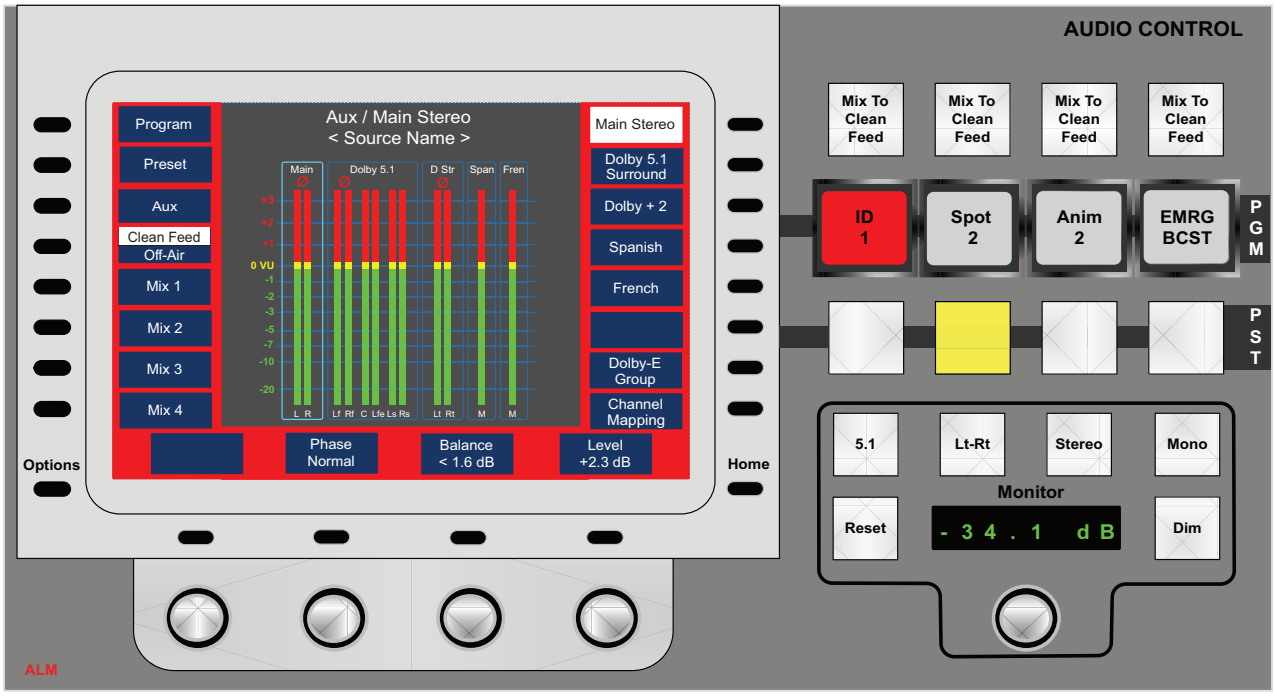
The Preset or Program audio mix source is selected in the same manner as a key source, except that the Mix Preset buttons are used instead of the Key preset buttons. The four mix source buttons are numbered as **Mix 1** thru **Mix 4** from left to right. Some early hardware control panels shipped before Version 1.3 do not have labels on the Preset Mix bus buttons. (All GUI control panels have the correct Mix labels.)

Mix to Clean Feed

Maestro provides a clean feed output which is a subset of the elements contained in the program output stream. Clean feeds are commonly used to transmit just the main program video and audio content without any keys, transitions, audio overs, etc. These elements are added in the local markets receiving the clean feed. However, it may be desirable in certain situations to add mix over audio to the clean feed output. Maestro now supports the "Mix to Clean Feed" of individual audio mix overs.

Figure 46 shows a representation of the Audio Control sub-panel on the Maestro Control Panel with the **Mix To Clean Feed** buttons above each audio mix over.

Figure 46. Audio Control Panel - Mix to Clean Feed



To add an audio over to the clean feed output, do the following:

1. (Optional) Press the small black button to the left of the **Clean Feed/Off-Air** soft label until Clean Feed is highlighted. This makes clean feed the audio monitor point for the master control room audio monitors so the presence of the mix over audio in the clean feed can be verified.

Note On the GUI control panel, touch (if using a touch screen monitor) or click on the Clean Feed/Off-Air label until Clean Feed is highlighted. There are no small black buttons on the GUI.

2. Press the **Mix To Clean Feed** button above the audio mix over that is to be added to the clean feed output. The **Mix To Clean Feed** button will be brightly illuminated to indicate that the associated audio mix over is or will be contributing to clean feed output at the currently selected mix over ration for that audio over.

Note In order for a mix over to be included in the clean feed output, it must also be on Program output. In the example in Figure 46, the only audio mix over currently contributing to Program is **ID1**. Other mix overs may be selected for inclusion with clean feed output; however, they will not be included in clean feed output until they are also transitioned to Program via a hot take (direct press of the audio mix over LCD button) or an automation-controlled or manual take.

To remove an audio mix over from inclusion in the clean feed output, press the **Mix To Clean Feed** button above the mix over to be removed. The **Mix To**

Clean Feed button illumination will dim to indicate the associated mix over is no longer contributing to clean feed output.

Note If an audio mix over is on the PGM bus, pressing the **Mix To Clean Feed** button cuts the audio mix in and out of the clean feed signal. If an audio over is not on the PGM bus, but, its **Mix To Clean Feed** button is enabled, when the audio mix over transitions to the PGM bus via a **TAKE**, it will do so at the rate and transition type that is active when the **TAKE** is initiated.

Mix-Over Ratio Selection

The default mix-over ratio is 12 dB, meaning that the background will be attenuated 12 dB when the Mix source is enabled. This value can be changed to a different default on the Audio Options table. In addition, the value can be adjusted from the control panel.

In Version 1.3 and subsequent versions, the way the mix-over Audio Monitor Point buttons work was updated to allow the user to hear the mix-over while adjusting the mix-over ratio. This can be done on either the Program or Preset buses. In addition, all the input audio controls in the audio drill-down screens can also be monitored on each of the Mix sources individually.

When a **Mix** soft button is selected, the source assigned to the corresponding **Mix** button located to the right of the VGA display is selected, displayed, and monitored (counting left-to-right).

Pressing the **Mix** soft button a second time will display Mix/(PGM). In this mode the Program bus is monitored, with the mix-over ratio appearing on the left-most position of level controls along the bottom of the VGA display. The control allows the user to adjust the mix-over ratio while monitoring the actual mix on the Program bus. Normally, mix-over ratios are done on the Preset bus as described below and then transitioned to the Program bus.

Pressing the **Mix** soft button a third time will display Mix/(PST). In this mode, the Preset bus is monitored, with the mix-over ratio appearing on the left-most position of the level controls along the bottom of the VGA display. The control allows the user to adjust the mix-over ratio while monitoring the actual mix on the Preset bus.

Channel Control Selection

The Channel Control sub panel is used to select the Maestro channel (Processor) for control. The term "channel" used here refers to a video channel and its associated audio channels.

The buttons on this panel (except the clock/timer controls) are configured using the Channel Delegation and Channel Delegation Control menus. In single-channel systems, the channel will be delegated to the control panel automatically.

Channel Bank

In multi-channel systems, the channels are grouped in "banks" of four channels each. For example, a given frame containing four channels could be accessed by pressing **Bank 1**, which would cause the names of those four channels to appear on the four LCD buttons. The operator would then press an LCD button to take control of ("delegate") that channel.

Lock

This function is not implemented.

Force Unlock

This function is not implemented.

Multi Channel

This function is not implemented. Only one channel can be controlled at a time.

Automation Disable

The **Automation Disable** push button will cause the Maestro to ignore commands sent from an automation computer to the Automation port; however, Maestro will continue to respond to all polls and queries performed by a controlling automation system.

Clock/Timer

The clock/timer is available on the GUI control panel, with software release 1.3 and subsequent versions, and with late-model Channel Control hardware sub modules.

The Clock window always shows a 24-hour time display.

In most applications, the clock will be synchronized to station time through the vertical interval time code (VITC) running in the house video reference signal. Alternatively, the clock will use the linear time code (LTC) arriving on the rear-panel GPIO connector. The choice of which time code to use is made during the Maestro Board Update process.

Drop-frame time is indicated by a semi-colon between seconds and frames. Non-drop-frame time is indicated by a colon between seconds and frames.

Segment Timer

When the **Seg Timer** button is on, the Timer display resets to 0 automatically and starts counting up upon each Take executed.

The segment timer operates completely independently from the stopwatch except that only one may be viewed at a time.

Stopwatch Functions

When the **Seg Timer** button is off, the Timer window shows the stopwatch value.

The stopwatch value is loaded using the 10-key pad of the Source Assignment sub panel. For example, to load a value of 1 minute, zero seconds, and zero frames, press 1, 0, 0, 0, 0. Then press **Send**, **Timer**.

Start/stop - Starts and stops the stopwatch.

Reset - sets the stopwatch to the loaded value.

Count Down - When toggled on, the stopwatch will count down. Otherwise, the stopwatch counts up.

Auto - In this mode, the stopwatch will automatically reset to the loaded value when a transition occurs.

Save Assignment Set (Board Setup Save/Recall)

Maestro can store up to 100 source assignment sets (board setups) for later recall. This allows rapid re-assignment of sources during the broadcast day.

Entire panel setups (**All**), or subsets of **Key**, **Mix**, and **Bkgnd** memories can be stored or recalled. Key memories are used to save the key sources for each of the keyers. Mix memories are used to save audio sources for each of the mixers. Background memory is used to save the source assignments programmed for the background operator-assignable source control buttons.

Note: The source **assignment** memory requires the operator to manually save information, while the source **setting** memory *automatically* stores adjustments (audio level, clip level, etc.) made to a source while that source is on Pst, Key, or Mix. For example, whenever a VTR is assigned to a button–whether by **Recall** or by **Send**–the previous audio level for that VTR will be effective.

Save Key

To store the current switcher setup in processor memory, press the **Save** button, followed by the memory number desired on the keypad (00-99). Then press one of the four memory types (**All**, **Key**, **Mix**, or **Bkgnd**), then **Save** again.

To recall a previously stored setup from processor memory, press the **Recall** button followed by the memory number, memory type, and the **Recall** button.

Emergency Alert System Switching

In USA installations, the GPIO connector on the Maestro rear panel can be connected to an Emergency Alert System (EAS) receiver. The receiver will, on receipt of an EAS message, automatically trigger the Maestro system to select the appropriate video keyer and audio mixer on Preset and Program and simultaneously transmit the emergency message. At the end of the message, the receiver will remove the trigger and Maestro will switch out the EAS key and mix sources.

WARNING Proper keyer and mixer operation requires the appropriate settings (e.g. clip, gain, self key, and mix-over ratio) to be in place when the EAS message is being transmitted. The EAS system should be tested and operating procedures established to ensure reliable operation during an emergency transmission.

For more information, refer to *Appendix B-Insertion of Keys and Audio Overs via GPI*.

Section 3

Channel Branding Overview

The Maestro Channel Branding option provides the necessary internal hard drive storage and the ability to process branding elements (such as: still images, animations, and audio files) in standard formats. These branding elements may be assigned to any of the eight (8) video keyers and the four (4) audio over mixers. The user will not notice a difference when assigning an external-direct connection that can be routed, or assigning an internal source to a keyer or audio over mixer.

The limited space for physical BNC inputs on the Maestro rear panel limits the number of keyer and audio-overs sources that can be used with the standard Maestro product. With the addition of the Channel Branding, these limitations do not apply as internal sources do not require physical connections to make them available to the keyers and audio over mixers.

With the Maestro Channel Branding option installed, all available keyers and audio over mixers may have sources assigned to them through the simultaneous use of internal and external sources. They may also all be placed on air simultaneously if that is your preference.

The Sonata AES-to-MADI converter also provides the ability to assign sources to and utilize the four audio over mixers; however, only the Channel Branding allows all eight Maestro keyers to be fully utilized.

System Features

The key features of the Channel Branding are as follows:

- Play four (4), 30-second, simultaneous Audio clips.
- Play four (4) simultaneous still images or CG text sources. These items may have associated audio which will also playback through the combined assignment and use of an Audio Mixer.
- Play two (2) simultaneous animation sequences or text crawls sources. These items may have associated audio which will also playback through the combined assignment and use of an Audio Mixer.
- Uses Windows-based Visualization Tool to:
    - Process still images that may or may not include an alpha or key channel
    - Edit or create a still image alpha or key channel
    - Create and format text crawl templates
    - Create CG text templates
    - Build character generator fonts
    - Review animation sequences
    - Review audio voice over clips

Hardware Implementation

The Channel Branding hardware is implemented on the Maestro frame processor board. Channel Branding hardware consists of three mezzanine or "daughter" boards, an audio clip cache, and space for up to four (4) hard disk drives. All of which is attached to the Maestro frame processor board.

Audio Clip Cache

The Audio Clip cache is 256-Mbytes of RAM that is located on the Maestro frame processor board. This RAM is used for audio voice-over playback buffering and other audio processing activities such as delay. The RAM is allocated to support four (4) audio sources using 48-KHz sampling with 16-bits per sample (CD quality) supporting up to 16-channels and a maximum length of 30-seconds per source.

Branding DSP Engine

The Branding DSP engine is a small-format processing board or module, which provides support for the retrieval and the displaying of content. The Branding DSP engine module is capable of supporting up to four (4) still images, or CG text, and one (1) text crawl or one (1) animation sequence. The Branding DSP engine module occupies one Channel Branding mezzanine position. Modules are combined to provide up to four (4) still images, or CG text, and two (2) text crawls or animations.

Channel Branding Hard Disk Storage

Branding elements are stored and accessed on the frame processor board-mounted hard disk drives. The hard disk frame supports a total of four (4) 2.5 inch SATA disk drives. Branding Elements are divided between pairs of storage arrays with the first pair of drives supporting still images, CG text, text crawls and voice-over audio. The second pair of drives supports animations.

System Workflow

A Channel Branding workflow is comprised of the following components and activities:

- Content Creation
- Content Gateway
- Ingest of Branding Elements
- Content Management
- Playout Management
- Element Playout

Content Creation

Content Creation describes external system user activities associated with definition, creation and the production formatting of Branding Elements. With the exception of text crawls, the Channel Branding requires a branding element to be completely ready for playout. Still Images must be in the correct image size and aspect ratio. Audio elements will be played in the produced length with a default audio mix ratio.

Content Creation is an external user activity and is outside the scope of Maestro Channel Branding configuration and playout. The user must ensure that branding elements meet the size, aspect ratio and length requirements for each branding application.

Supported content data formats are described in later sections.

Content Gateway

Content Gateway describes the hardware and software used to interface a Maestro system to an external network production environment. The Content Gateway protects the Maestro system from unauthorized external LAN users, and provides the methods by which branding elements are transferred to the Channel Branding.

The Content Gateway must be configured to support permission based external user access allowing NFS transfer of branding element data files to defined folders that are supervised by the Content Gateway. External users also have the ability to transfer branding elements from the defined folders. Branding elements stored in the defined folders are the element files preserved in the original production data formats.

The Content Gateway may be installed on the Maestro Deployment PC Computer. If the Content Gateway is implemented on the Deployment PC, the Content Gateway branding element transfer folders must also be located on the Deployment PC.

Note Installation of the Content Gateway requires hardware not provided by Grass Valley. See *Content Gateway and LAN Architecture* fro more information.

Ingest of Branding Elements

Ingest describes the Maestro system activities associated with acceptance of externally generated branding elements, element format conversion and loading of elements to the associated Channel Branding storage media.

Transfer of externally generated elements is implemented as a simple Network File System (NFS) placement of the branding element in Maestro system defined folders managed by the Content Gateway. Once the element is placed in the defined folders, Ingest converts the element to the internal Channel Branding data format for the type of branding element in preparation for transfer to the associated Channel Branding's storage. The transfer of the converted element to the Channel Branding storage is completed automatically without operator intervention or the need to deploy a new configuration,if Channel Branding is configured to be"automatic." There is a manual deployment mode that can also be configured via the Content Definition table.

The Content Creation environment is responsible to ensure that branding element filenames are correctly defined to properly link element configurations with associated configuration slots and content.

In the special case of Text Crawls and CGText, the Ingest processes the command file created using the Channel Branding Visual tool, prepares the

file to be used by the Channel Branding and posts the processed data to the Channel Branding storage.

Content Management

Content Management is the Maestro system activities associated with the configuration of the Channel Branding, Branding Element default playout parameters, automation event association, and Branding Element content linkage. The configuration process defines Branding Element attributes that do not require dynamic modification or update.

Branding Elements are defined in the Maestro Configuration Editor Content Definition table and associated with source names in the Maestro Configuration Editor Input Set table.

Two general types of branding element configurations are supported:

Manual

Branding elements that are defined as "manual" are updated whenever a configuration is loaded that contains those elements or when the **Show Contents** button is clicked in the Deployment Center.

Automatic

Branding elements that are defined as "automatic" are monitored automatically in the Content Gateway and anytime the file is changed, it is automatically ingested, converted to the proper format and deployed with no manual intervention required.

Playout Management

Playout Management is the Maestro system activity that is associated with recalling branding elements from the Channel Branding storage media, and loading the associated keyer or audio mixer in preparation for playout or assignment. Branding elements are played at their produced screen size and aspect ratio, no image scaling is provided. Still image and animation branding elements are loaded to the screen position and opacity defined in the associated branding element configuration. Audio branding elements utilize the ratio that is specified in the Audio Ratio field of the Content Definition table. This field is specified when the Audio Clip is defined.

Once a branding element has been loaded to a keyer or audio mixer, the default screen location or audio mix ratio may be modified by the operator prior to placement to air.

In an automation environment, branding elements are recalled using the automation input associations defined during configuration. This is usually accomplished using an automation secondary or tied event.

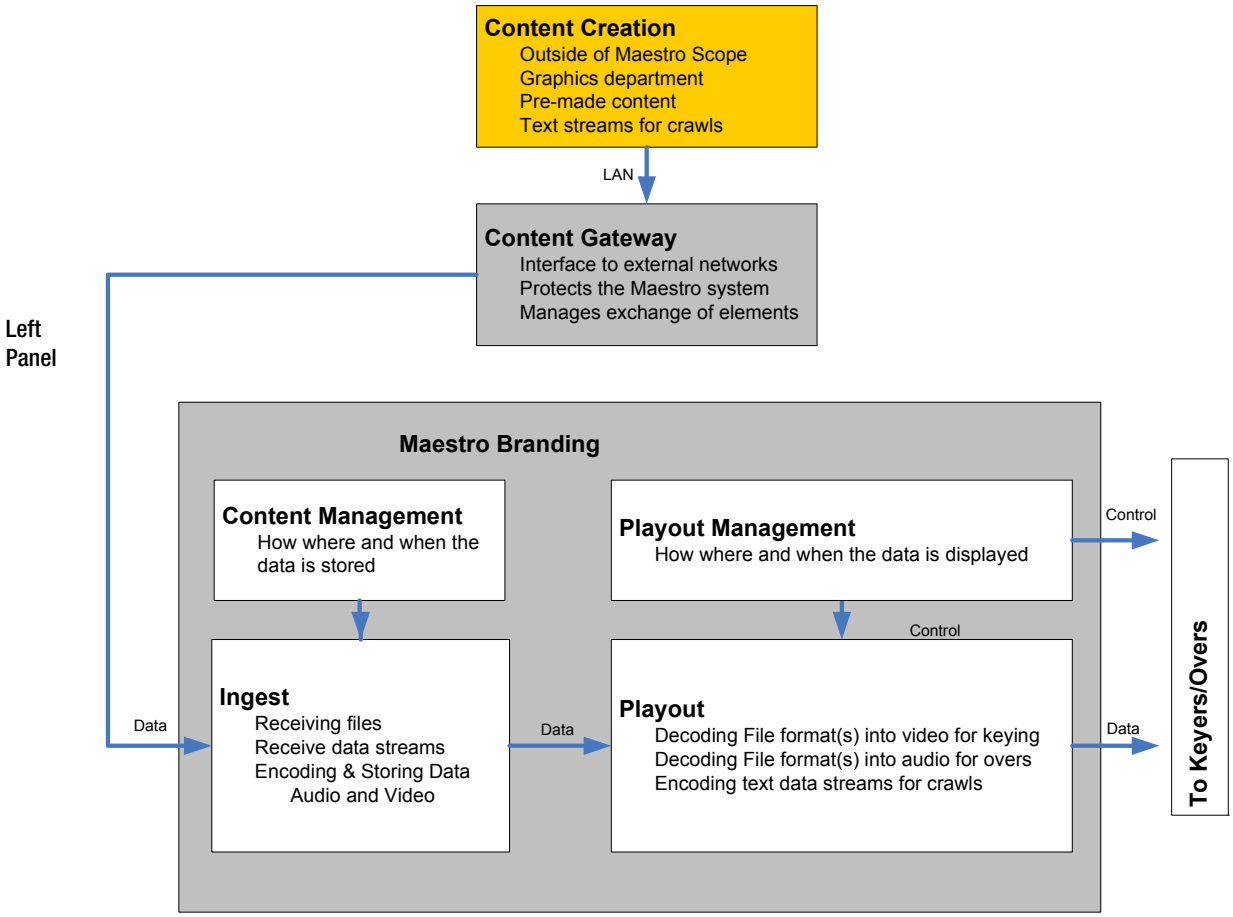
Element Playout

Element Playout is the Maestro system activities associated with playing the previously loaded branding element and placing the resulting content to air.

Branding element playout begins when the associated bus or keyer transition is executed.

Figure 46 illustrates the relationship between the Channel Branding workflow components.

Figure 46. Channel Branding Workflow Diagram



Supported Branding Element Formats

The Channel Branding supports various branding elements as described below.

Still Images

Still Images are single frame graphic objects capable of playout in the Channel Branding. The Still Image is created in the screen size required for playout. The maximum image size is limited by the selected frame processor video standard. A Still Image may be smaller than the maximum screen size defined by the video standard. In this case, the Still Image may be positioned anywhere within the video standard screen space as illustrated in Figure 47.

Figure 47. Still Image in Lower Right Corner

Audio may be associated with a Still Image for simultaneous playout using an Audio mixer.

Still Images are converted to the internal Channel Branding data format prior to storage in preparation for playout. The alpha channel is supported if included as part of the still image element.

The Maestro Channel Branding will accept and convert the following still image data formats:

- TIFF files (.tif)
- Portable Network Graphics files (.png)
- Windows Bitmap files (.bmp)
- Joint Photographic Experts Group (.jpg)
- Graphics Interchange Format (.gif)
- Window Metafile files (.wmf)

Audio Files

Audio files used in voice overs are supported by the Channel Branding feature. Audio files are created in the length required for playout. The maximum audio element length, with 16-audio channels, is 30-seconds. An audio file is played in its entirety unless it is interrupted by a program or an effect transition. The audio file is configured to play in one of the following modes:

Play Once

The Play Once mode will play the entire audio element once and then will stop in silence. The element is then removed from Program output by a transition or a hot take.

Loop

The Loop mode will play the entire audio element constantly looping from the end of the audio element to the beginning of the audio element. This mode will continue until the element is removed from the Program output.

Audio files are converted to the internal Channel Branding data format prior to storage in preparation for playout.

The Maestro Channel Branding will accept and convert the following audio data formats:

- Windows Audio Format (.WAV)
- Broadcast Wave (.WAV)

Channel Branding audio clips are played using 48-KHz sampling with 16-bits per sample per channel (which is commonly called CD quality). Externally-generated audio elements that use more that 16-bits per sample will be rounded to 16-bits per sample for storage and playout by Ingest.

Animation Sequences and Full-Motion Video

Animation branding elements are still image sequences or motion video objects that are capable of playout in the Channel Branding. The length of an animation sequence is determined by the object that is being animated. An Animation sequence is played in its entire length unless it is interrupted by a program or an effect transition. The Animation sequence is configured to play in one of the following modes:

Play Once

The Play Once mode will play the entire animation element once and then freezes at the last frame. The element is then removed from program output by a transition or hot take.

Loop

The Loop mode will play the entire animation element continuously looping from the last frame of the animation element to the beginning frame of the animation element until it is removed from the program output.

An Animation sequence is created as a sequence of still images and may be associated with an Audio element for combined playout, using an Audio mixer. The Audio element may either be an internal source that is played from the clip cache, or an externaly routed source.

The Maestro Channel Branding will accept and convert animation sequences or motion video in the following data formats:

- Multiple-image Network Graphics (.MNG)
- Graphics Interchange Format (.GIF)

Text Crawls

Text Crawls are a special case of an animation element in which the text content of the animation is created outside of Channel Branding and is then reformatted for Channel Branding playout. The source of the text data may be external or internal to the Maestro system environment. The text data must be processed and inserted into a predefined animation sequence template that specifies the display parameters such as font, size, color, border/edge effect, background elements, and speed of crawl or text reveal.

Text Crawls are one or more text lines, with associated formatting, that move across the display screen in a horizontal (right to left) direction and are shown in a single line. The defined speed indicates how fast the text moves across the screen. The speed is defined in the *Crawl Rate (pixel/frame)* field on the Content tab.

The Text Crawls feature includes the ability to insert still images and an animation into a Text Crawl.

Emergency Messaging Support

In the United States, broadcasters are required to support and display test and alert messages that are generated by the Emergency Alert System (EAS). Several message types and display formats are specified. In addition, certain message types contain a voice announcement that must be repeated and/or transcribed before the test or alert is displayed on the broadcast channel. (See the FCC document at: http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-278628A5.pdf)

The EAS test or alert is received over-the-air and monitored by an approved EAS Decoder. The EAS Decoder recognizes the EAS message header and end tones and creates the text data to be inserted into the EAS crawl or message screen.

In typical broadcast environments, the EAS Encoder data is processed and provided to an external keying system such as a Digital or Black-Box CODI. The CODI is a character generator device that accepts the EAS processed data and provides Foreground video and key signals for insertion to the station program signal chain using its internal video keyer or as a key and fill source for a master control switcher such as Maestro. The audio captured as part of the alert message, is stored and played by the EAS Encoder as part of the message display. The EAS Encoder and CODI device coordinate playback to insure that the video display and audio message, including alert tones, are played simultaneously.

Section 4

Installation Planning

Effective planning for the installation of a Maestro Channel Branding solution requires an understanding of the required Channel Branding hardware, software, and configuration components of the entire system.

For detailed information on the hardware components and installation of these components, see the Maestro Channel Branding Quick Start Guide (part number 86225851).

For detailed information on the installation and configuration of the Channel Branding software, see the Maestro version 1.7.0 Release Notes (part number 071850608).

For information concerning the operation of the Channel Branding by the user, see *Section 5-Branding User Operations* in this manual.

The LAN architecture that links the Branding Element Production LAN and the Maestro LAN is explained in this section.

Content Gateway and LAN Architecture

The Content Gateway is one or more PCs and folders in which branding elements are stored. These branding elements may be defined for use by Maestro channels and deployed to those channels with the Maestro Configuration Editor and Maestro Deployment Center applications. It is recommended that a single PC be used to host the Content Gateway; although, it is possible to use more than one.

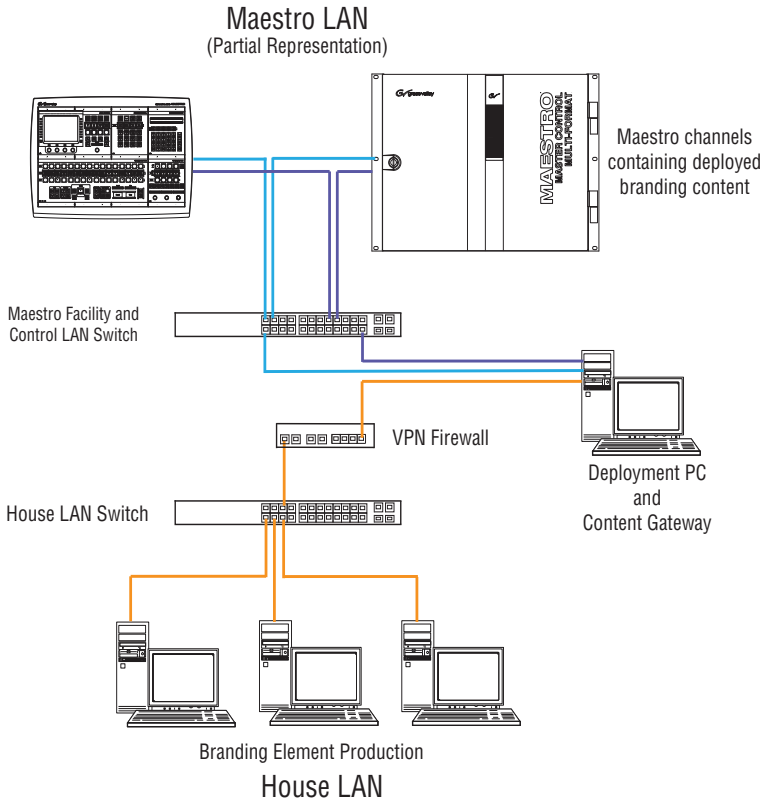
For simplicity, it may be desirable to install the Content Gateway on the Maestro Deployment PC. The discussion which follows assumes the Deployment PC is used as the Content Gateway.

Note Content Gateway folders may be installed on one or more PCs, including the Deployment PC, if preferred; however, to protect the Maestro LAN, all Content Gateway PC(s) should be behind the VPN firewall as illustrated in Figure 48.

Figure 48 shows an example of the LAN configuration which connects the Deployment PC and Content Gateway to the House LAN on which branding element production takes place.

Note The LAN configuration in Figure 48 is an example only. Please note that the installation and configuration of the Content Gateway and the interfaces between the Branding Element Production LAN and the Content Gateway uses customer-supplied equipment which is not included with Maestro or the Channel Branding hardware.

Figure 48. Branding Exchange Gateway LAN Configuration



The Deployment/Content Gateway PC is the only machine that has access to both the House LAN and the Maestro LAN. This configuration will minimize the impact to both the house branding element production network and the Maestro network.

The Content Gateway requires that the configuration of a LAN be separate from the Maestro Facility and Control LANs. If the GUI control panel is also installed on the Deployment PC, it will be necessary to add a third Network Interface Card (NIC) to the Deployment PC/Content Gateway in order for the Branding Element Production LAN to have access to the Content Gateway for storing branding elements.

Note For simplicity, Grass Valley recommends the Belkin Gigabit USB 2.0 Network Adapter (Belkin part number F5D5055 shown in Figure 49) as it can be added easily without opening the PC. This hardware has been tested in a configuration similar to that illustrated in Figure 48.

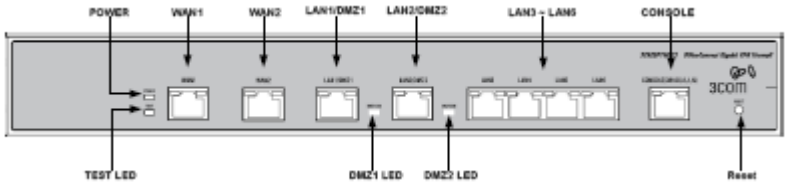
Figure 49. Belkin Gigabit USB 2.0 Network Adapter

The VPN firewall protects the Deployment PC (or other PCs) on which the Content Gateway resides and the Maestro LAN from unauthorized local or remote access.

Note Grass Valley recommends the 3COM OfficeConnect Gigabit VPN Firewall Appliance (3COM part number 3CREVF100-73). This hardware has been tested in a configuration similar to that illustrated in Figure 48.

The 3COM OfficeConnect Gigabit VPN Firewall Appliance has two (2) WAN ports and six (6) LAN ports as illustrated in Figure 50.

Figure 50. 3COM OfficeConnect Gigabit VPN Firewall Ports



Section 5

Branding User Operations

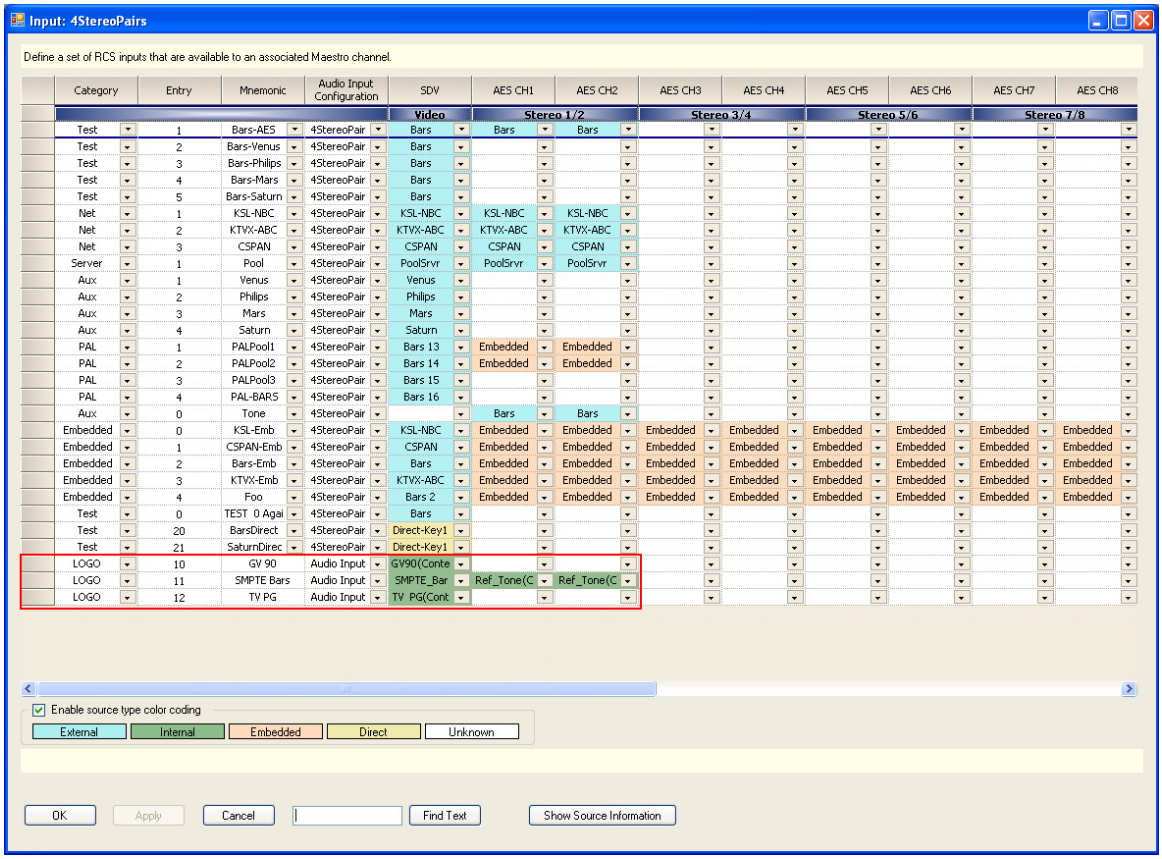
This section explains the operation of the Channel Branding from a Master Control operator's point of view. The following steps are covered:

- Branding Element source overview
- Branding Element source assignment
  - Source assignment considerations
- Modifying a branding source
  - Modifying still image parameters
  - Modifying the key position

Branding Element Source Overview

The Branding elements, that are available for your selection, are defined in the Configuration file's Input table (Figure 51).

Figure 51. Input Table with Branding Elements Added



Branding elements are considered to be “Internal” sources. These source elements are stored on the Channel Branding hard drives that are located on the Maestro Channel Processor board. When a Branding element is added to the Input table, the video and audio sources are highlighted in green to indicate they are internal sources (see Figure 51).

Note The ability to highlight Sources in colors that designate the Source type is active only if the “Enable source type color coding” check box is selected in the lower part of the Input table. See Figure 51.

Only the branding elements that are defined in the Input table will be available to the channels that utilize that specific Input table. This utilization makes it possible to create different Input tables for different Maestro channels that have different branding content.

Branding Element Source Assignment

The assignment of an internal Branding element to either a video keyer or to an audio over mixer is done the same way as assigning an external

routable or direct-connect source. There is no distinction between source types in the source assignment process from an operational point of view.

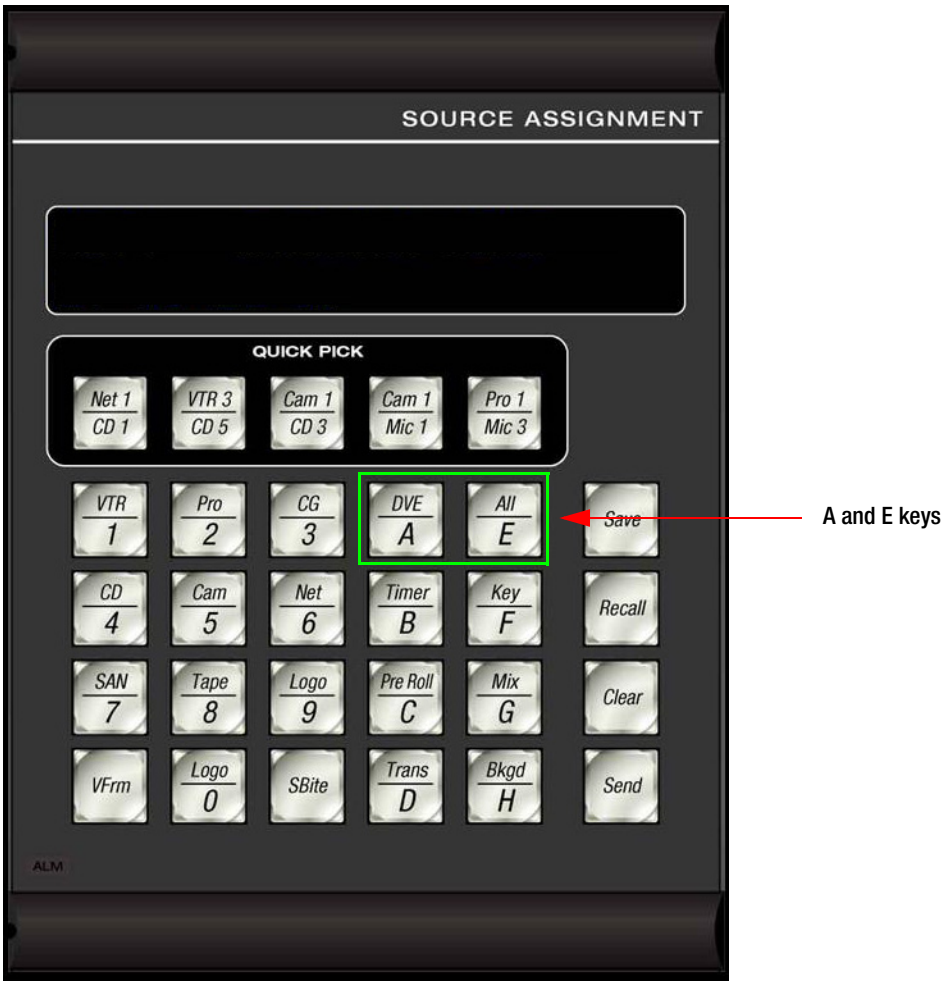
Since sources are organized into source categories in the Maestro configuration, branding sources may be categorized in distinct groups for convenience in locating a desired source. For example, these categories could be Stills, Logos, Animations, Audio or any other logical grouping.

Follow these steps to assign a branding source to a Keyer or an Audio Over Mixer:

1. Press the **Send** button on the Source Assignment panel (The Control panel can be either hardware or GUI). See Figure 52.

Note Use the Up and Down arrows (on the **A** and **E** keys) on the Source Assignment panel if you do not know the categories and entry numbers for a source. Do NOT press the **Send** button first. The Up and Down arrows will scroll through all the available sources. When the preferred source appears in the window, press an available (that is, a green highlighted) PST button to assign the source.

Figure 52. Maestro Control Panel's Source Assignment Sub-Panel



2. Select the category button to which the preferred still image or the audio mix over branding source has been assigned.

3. Enter the source number that designates the preferred source.

Note For example, above in Figure 51, the SMPTE Bars mnemonic is assigned to source number 11 in the LOGO category.

4. Press any PST button, which is illuminated green on either the Keyer or the Audio panel, to assign the selected source to that button. (The type of panel depends on the source type that you wish to assign)

   The text 'Loading" will then appear in the PST button.

The specified mnemonic for the selected source will then appear in the PGM LCD button.

Note Assigning a branding element source to a video keyer or audio over mixer causes the content associated with that source, as defined in the Content Definition table in the Maestro configuration, to be loaded into the on-board frame buffer (still images) or clip cache (audio files).

When a still image or audio voice over branding source is assigned to a video keyer or audio over mixer, the following takes place:

- The source is copied from the branding hard drive.
- The still images are converted to a video image.
- The source is loaded into either a Maestro video frame buffer (still images) or an audio clip cache (audio files).

Note When the mnemonic for the source appears on the LCD button, the process above is complete. The time it takes to complete this process varies based on source file size; it can be from near instantaneous to several seconds. The text "Loading" will be displayed while the file is loading. If the "Loading" text does not disappear, the source has failed to load.

Source Assignment Considerations

Because of the nature of branding elements, the content that is associated with a particular branding element may change from time to time. For this reason, it is important to verify the content of the element on the PST monitor before it is aired.

Note Branding elements are loaded when they are assigned to a video keyer or audio over mixer. If the branding element is still loaded in the on-board still image store and its content has changed on disk, there may be a mismatch between the expected and observed on-screen content.

Follow these steps if the content displayed on the PST monitor is known to be different than the expected content:

1. Clear the assigned source by pressing the Send button on the source assignment panel and then pressing the PST button for the source you wish to clear.

Note A source cannot be cleared if it is currently on air (PGM LCD button is red) or selected on the PST bus (PST button is yellow).

2. Reassign the source following the instructions in *Branding Element Source Assignment* on page 134.

3. Select the source on the Keyer Control PST bus. The text "Loading..." will then appear in the PST button.

4. Verify the source on the PST monitor.

Modifying a Branding Source

Branding still image files are configured with default opacity and position settings. These defaults can be changed by the operator.

Modify Still Image Parameters

Clip, Gain and Opacity

Follow these steps to modify a still image clip's gain and opacity parameters:

1. Press the PST button for the preferred source to activate the source on the PST monitor.

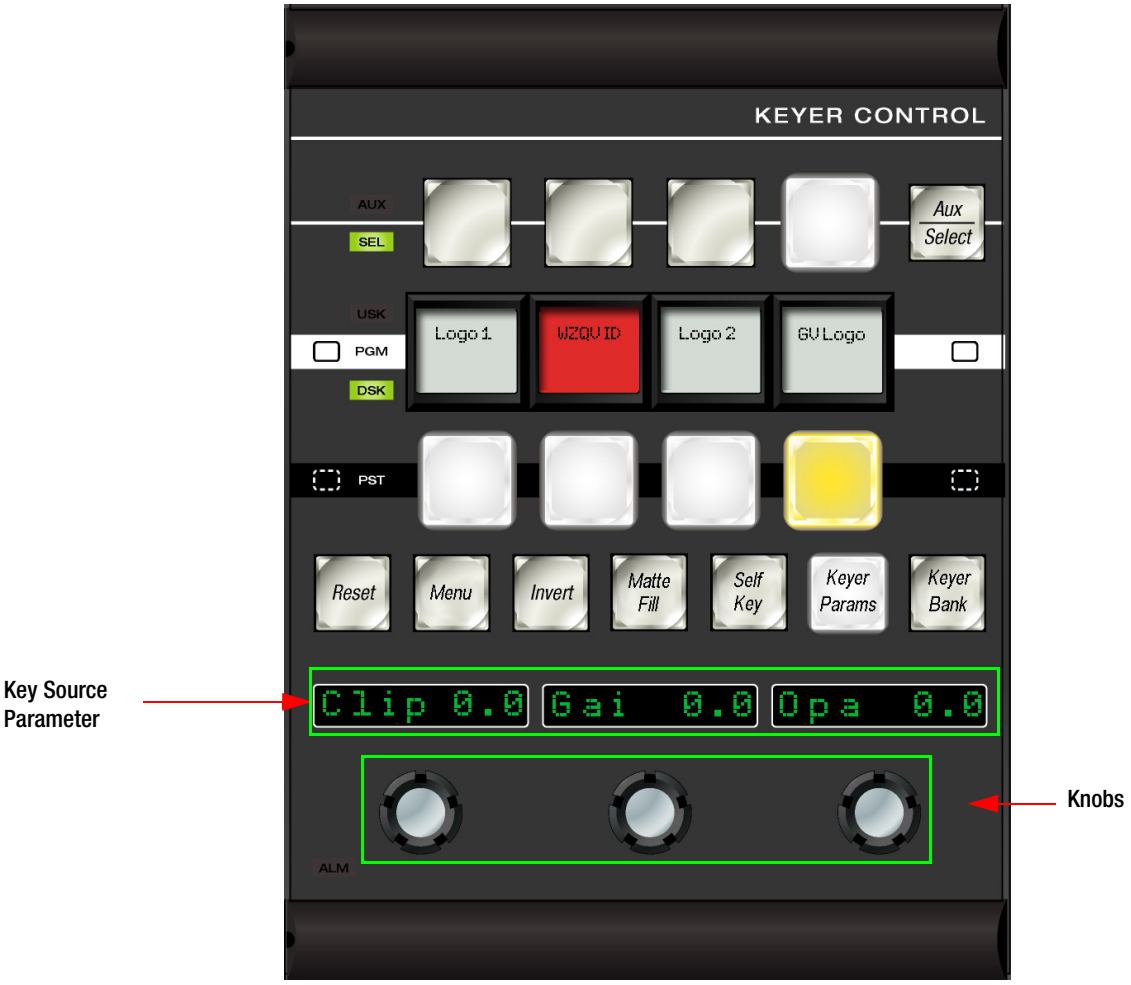
2. Verify that the expected still image appears on the PST monitor.

3. Press the SEL key above the LCD button for the source that you wish to modify. See Figure 53.

4. Press the **Keyer Params** button to modify the parameters of the selected key source.

When the **Keyer Params** button is pressed, the Clip, Gain and Opacity settings for the selected key source may be modified, see Figure 53.

Figure 53. Maestro Control Panel Keyer Control Sub-Panel



5. Rotate the knob below the key source parameter you wish to modify. Changes can be noted on the PST monitor (see Figure 53 above).

Note Since Maestro has source memory, the changed parameters become the new settings for the selected source. Even if the source is no longer assigned to a keyer, the last used parameter settings for that source will be remembered the next time the source is assigned.

Key Position

Follow these steps to modify the on-screen position of a source assigned to a video keyer:

1. Press the PST button for the preferred source. This step will activate the source on the PST monitor.

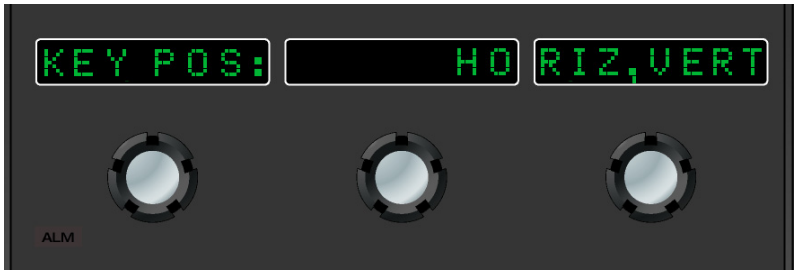
2. Verify that the expected still image appears on the PST monitor.

3. Press the SEL key above the LCD button for the source which you wish to modify. See Figure 53.

4. Press the **Menu** button.

5. Rotate the left knob until the KEY POS: option appears in the window at the bottom of the Keyer Control panel if it does not already appear (Figure 54).

Figure 54. Key Position Menu Option



6. Press the **Menu** button to select the KEY POS: menu option.

The display changes as illustrated in Figure 55 to show the current horizontal (in pixel) and vertical (in lines) position of the key.

Note The number of available pixels and lines for positioning a key are determined by the video standard assigned to the Maestro channel processor. The numbers in the LCD windows refer to the number of horizontal pixels from the upper left corner of the screen to the upper left corner of the key and the number of vertical lines from the upper left corner of the screen to the upper left corner of the key.

Figure 55. Key Horizontal and Vertical Position

7. Rotate the knobs for horizontal and vertical position as needed to position the key in the preferred on-screen location. Position changes may be noted on the PST monitor.

Section 6

Visualization Tools

This section contains information on the tools that are designed to aid in the management and deployment of branding elements to the Maestro Channel processors.

This section will explain:

- The Maestro Visualization tool
- The Visualization Tool's Interface
- The Still Image tab
- The Font Builder tab
- The Audio Files tab
- The Animation tab
- The CG Text tab
- The Text Crawl tab
- The DVE Key Frames tab

Visualization Tool

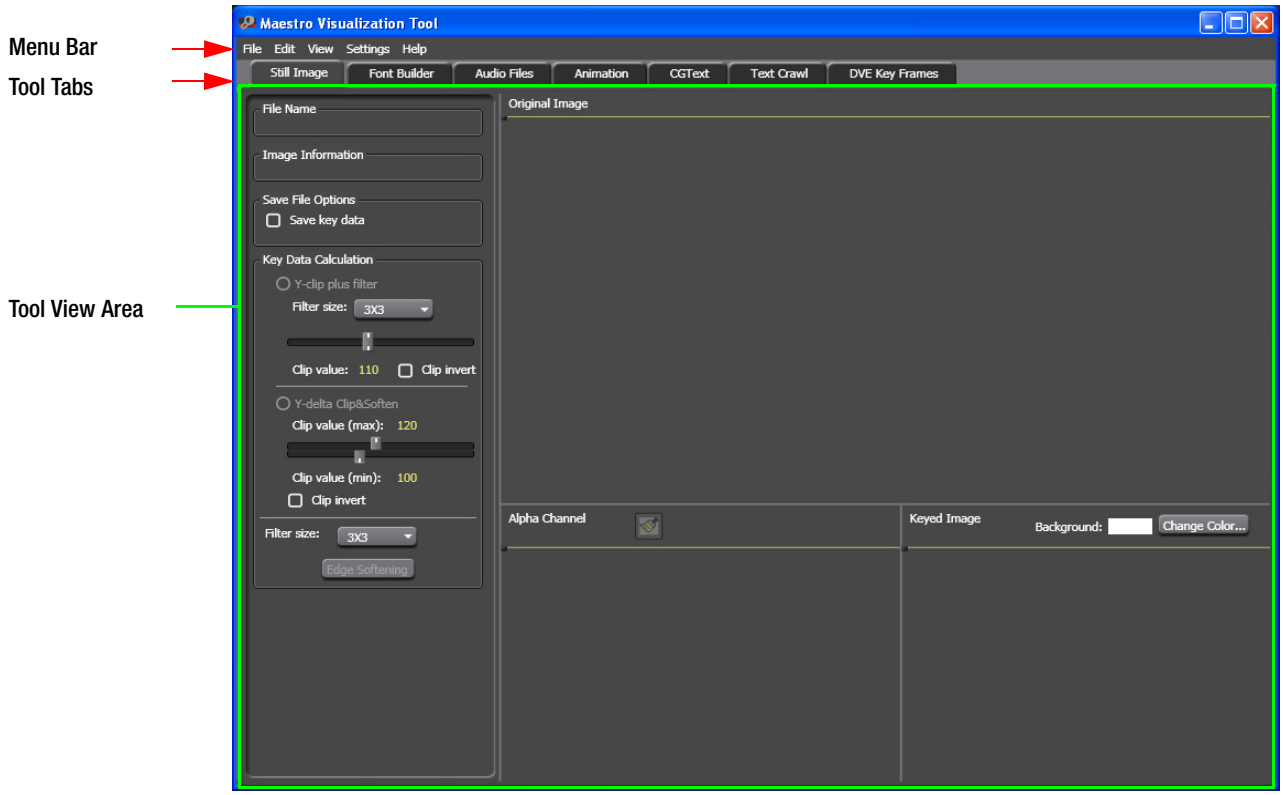
The Maestro Visualization tool is provided to aid in the fine tuning and management of existing branding elements. This tool is not for the creation of branding content.

Although a shortcut is not automatically created on the desktop for this application, the Visualization Tool is included with the Maestro Software Package installation.

Visualization Tool Interface

When the Visualization Tool is launched, a splash screen will be shown and then the Maestro Visualization Tool's Still Image screen will be displayed. The figure (Figure 56) below shows the Visualization Tool's common features and will provide the name of the different areas of the interface. These names will be used throughout the rest of the manual.

Figure 56. Visualization Tool Interface



Menu Bar

The Menu bar contains the Tool parameters and defaults. Each Menu item is described below.

File

Open File: Selecting this item will open a file dialog box to select and open a branding element in one of the supported Channel Branding file formats.

Save As PNG Image File: Selecting this item will save the current still image file that is being processed as a PNG file.

Save As Wave Audio File: Selecting this item will save the currently processed audio file in the WAV File format.

Open CGText Template: Selecting this item will open a file dialog box to select and open a CGText template for editing.

Save Template: Selecting this item will save the current CT Text template.

Exit: Selecting this item will close the Visual Tool and returns to Windows.

Edit

Undo Ctrl+Z: This is a standard Windows Undo tool. Selecting this item will cancel out the last command that was performed.

Redo Ctrl+Y: This is a standard Windows Redo tool. Selecting this item will recreate the last command that was performed.

View

Normal Size: Selecting this item will present the Still Image branding element at its actual pixel width and height

Zoom: Selecting this item will scale the Still Image branding element for editing. However, the actual size of the branding element is not changed. The following zoom options are available:

- 25%
- 50%
- 200%
- 400%
- 600%
- 800%

Settings

Video Standard: Selecting this item will select the video standard that is to be associated with the branding element. The following video standard options are available:

- V480I5994_4x3(NTSC video)
- V575I50_4x3 (PAL video)
- V1080I5994_16x9
- V1080I50_16x9
- V720P5994_16x9
- V720P50_16x9

Help

About Maestro Visualization Tool: Selecting this item will open a dialog box that contains information about the Maestro Visualization Tool, including the software version.

Starting the Visualization Tool

Follow these steps to start the Visualization Tool:

1. Start the Maestro Visualization Tool from the All Programs Menu list. (Click the Start button> All Programs> Thomson> Maestro Visualization Tool.)

   Or

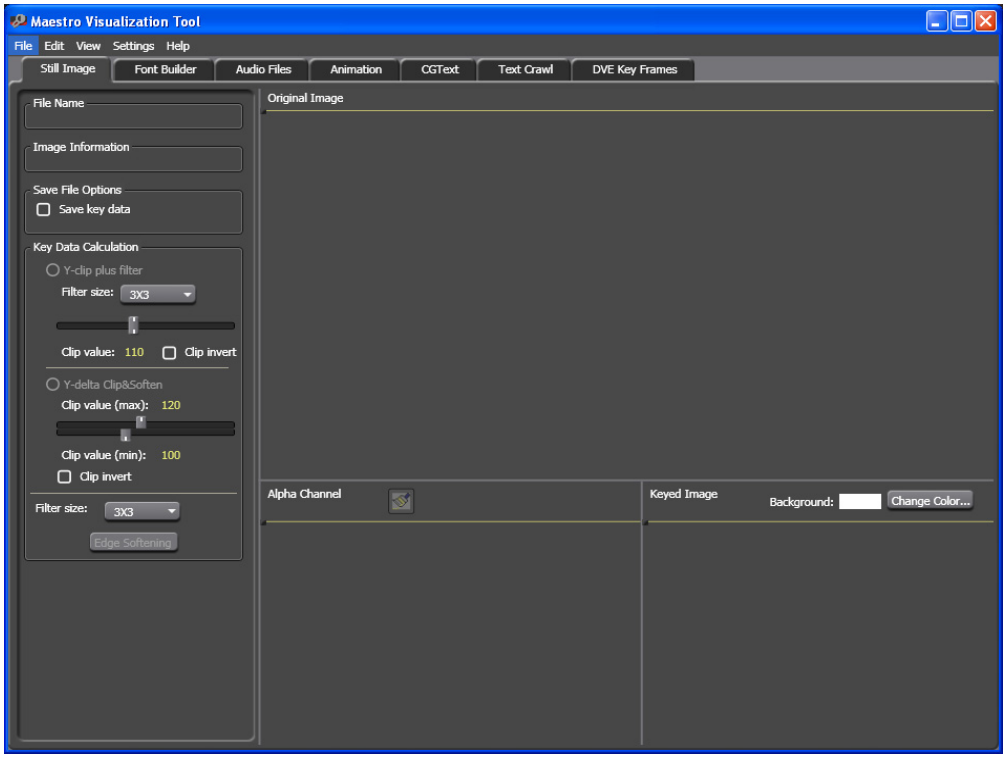
   Run the executable program called “BEVisualTool.exe,” which is located in the Maestro Software Package folder. (C:\Program Files\Thomson\Maestro Software Package\Visual Tool, where “C” is the name of your hard drive.)

2. Create a desktop shortcut to the MaestroVisualTool.exe and double-click the MaestroVisualTool icon illustrated in Figure 57.

Figure 57. Maestro Visual Tool Icon

Figure 58 shows the application as it appears after start up.

Figure 58. Channel Branding Visual Tool



Notice that there are several tabs in the application's interface that allow the management of still images, fonts, audio files, animation files, CG text files and Text crawl files.

Still Image Tab

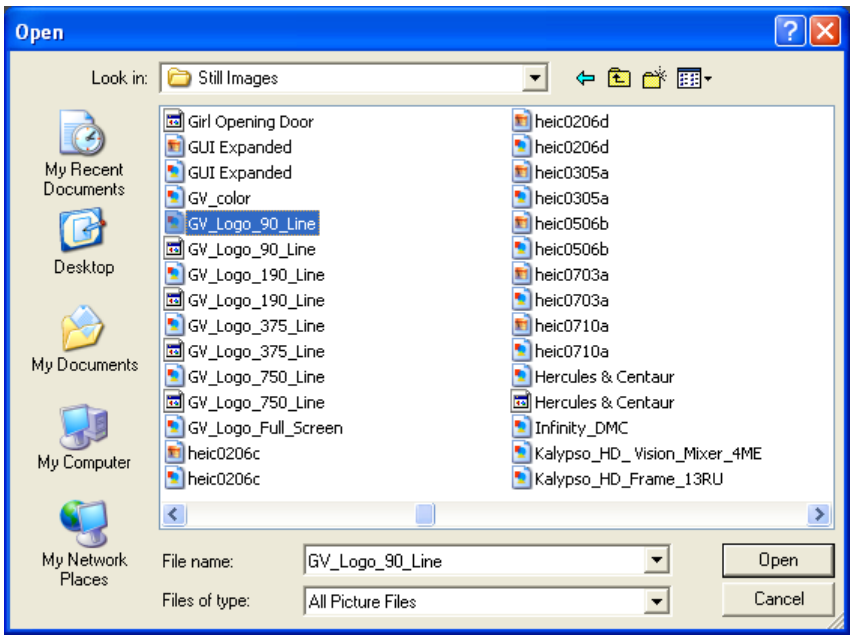
A Still Image is a single frame graphic that is capable of being played by Channel Branding. The Still Image size should be created to meet the required screen size. The maximum size an image can be is determined by the selected video standard.

Follow these steps to open a still image for editing in the Visualization Tool:

1. Select File> Open File... from the menu bar.

An Open dialog will then appear as illustrated in Figure 59.

Figure 59. File Open Dialog



2. Browse to the folder location containing the file that you wish to open.
3. Select the file from the folder and then click the **Open** button.

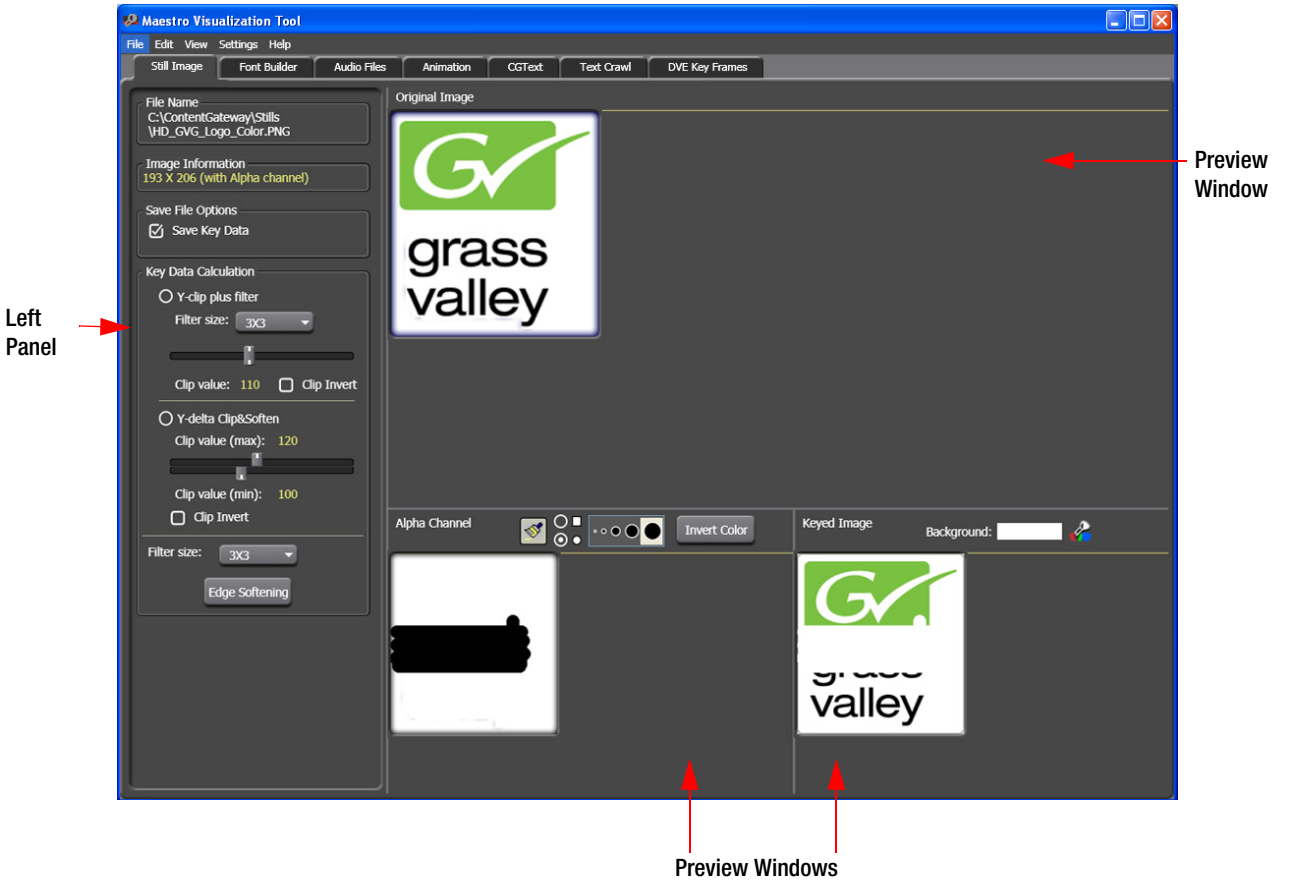
The still image file is opened and the editing options are active as illustrated in Figure 60.

The panel on the left displays image information such as:

- Filename path
- Image size in pixels
- Alpha channel status (whether or not the image contains alpha channel data)

The left panel also has tools for creating or modifying the alpha channel and softening the edges of the alpha channel (also softens the inserted key effect).

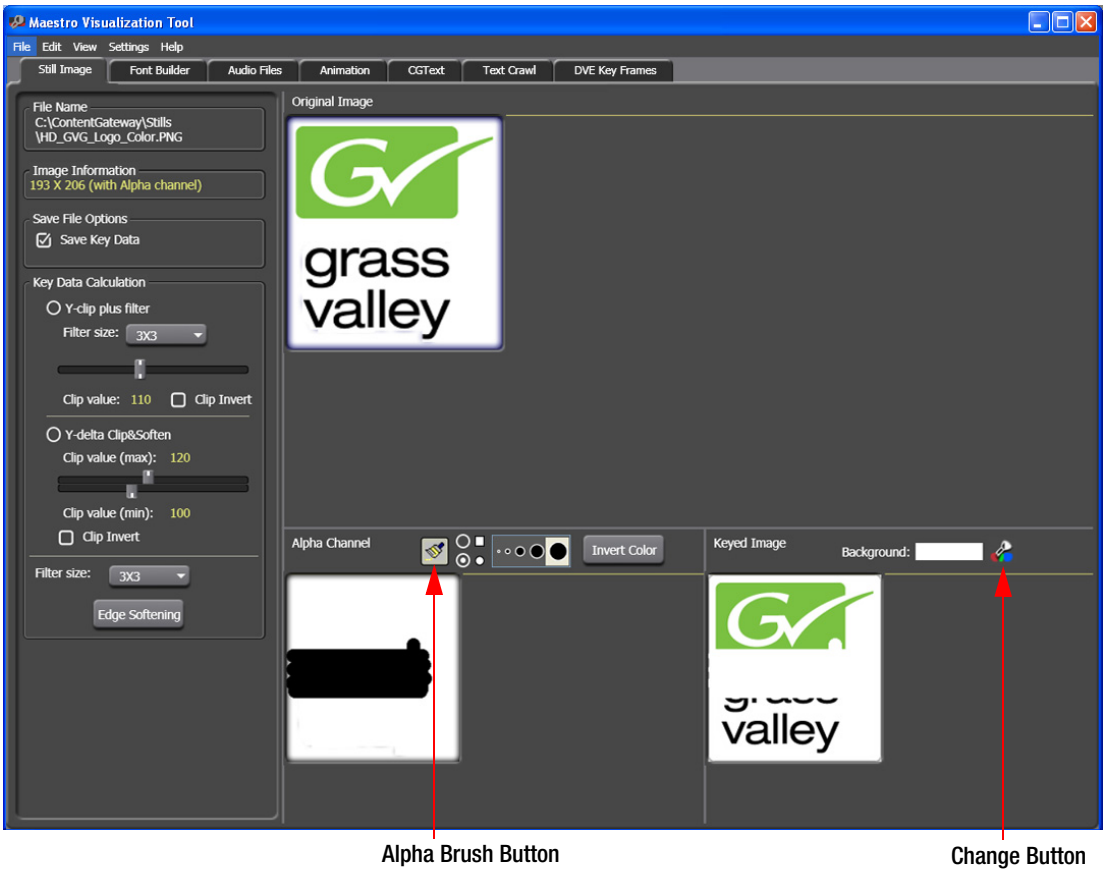
Figure 60. Visualization Tool - Still Image Editing Tools and Preview Windows



Previewing an Image

The image Preview windows show the original image (on top), the alpha channel (bottom left), and a simulated keyed image (bottom right), which is the result of combining the original image and the alpha channel over the selected Background color (Figure 60).

Figure 61. Visualization Tool Buttons



Using the Alpha Brush Tool

In the Alpha Channel window, the Alpha Brush tool may be used to add more transparent areas in the alpha channel (white paintbrush) or, erase portions of the existing alpha channel transparency (black paintbrush).

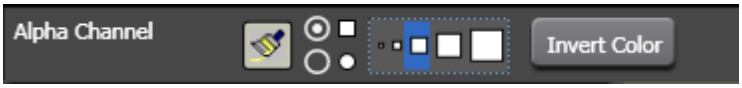
An alpha channel is a key cutout or mask which allows portions of the image to be seen through the transparent areas and others to be masked out. In the example below, the white areas are the transparent areas which allow portions of the image to be seen. The black areas mask out portions of the image.

Follow these steps to use the Alpha Brush tool:

1. Click the **Alpha Brush** button (Figure 61).

Paint tool options appear in the Alpha Channel window as illustrated in Figure 62.

Figure 62. Paint Tool Options

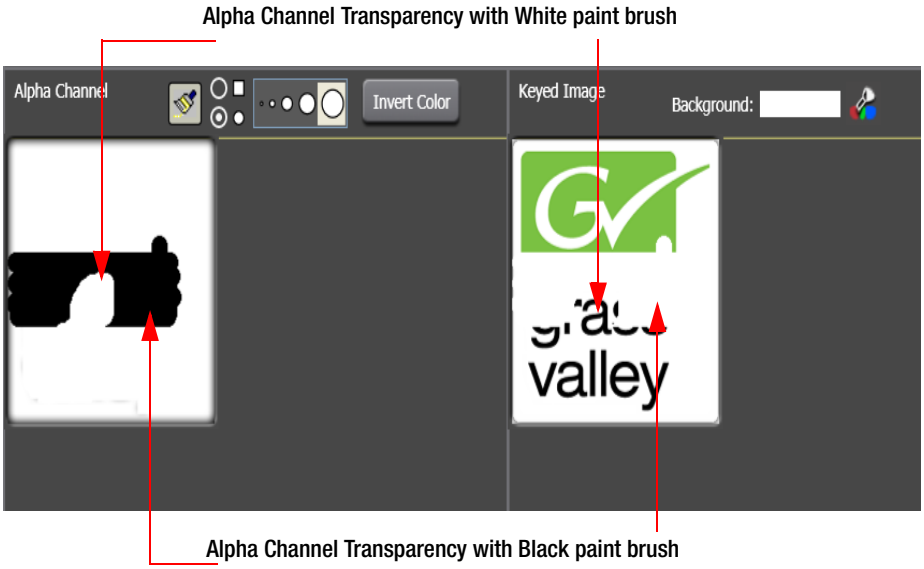


Note The **Alpha Brush** button toggles the paint options on or off each time it is clicked.

2. Click the **Invert Color** button if the preferred paint mode is not selected.
   - The white paintbrush add more transparency areas to the alpha channel which allows portions of the image to be visible through the key mask
   - The black paintbrush erases portions of the alpha channel transparency and masks out portions of the image.
3. Select the preferred paintbrush shape (square or circular) and paintbrush size.
4. Paint (or erase) the preferred areas of the alpha channel transparency as shown in Figure 63.

Note You may perform paint operations in any of the three preview windows - Original image, Alpha Channel or Key Image.

Figure 63. Create Transparency with Eraser Tool



Changing the Background Color

The background color can be changed in the Keyed Image window in order to see how that color may change the appearance of the image with the alpha channel applied and to better see the simulated key.

Follow these steps to change the background color:

1. Click the **Change** icon in the Keyed Image preview window (Figure 64).

A color selection dialog appears.

2. Select the preferred background color in the Color dialog.
3. Click the **OK** button to close the dialog and change the background color.

Figure 64. Background Color Change

Alpha Channel (Key Data) Tools

All still images that are created on the branding element production LAN and then loaded on the Content Gateway; should have been created with alpha channel (key) data. The alpha channel defines the areas of transparency in an image which are filled by the background. Black is completely transparent (100% transparency) and white is completely opaque (0% transparency).

The Key Data Calculation tools may be used if a still image does not have an alpha channel, or, you wish to modify the current alpha channel parameters.

Using the Y-Clip Plus Filter

This method creates an alpha channel based on a designated luminance (Y) value. Luminance values less than the selected value are clipped from the image allowing the background to fill in these areas.

Follow these steps to use the Y-Clip Plus Filter method for creating an alpha channel:

1. Select the radio button to enable Y-Clip Plus Filter.
2. Select the preferred luminance clip value using the slider. Luminance values below the selected value will be clipped.

Note As shown in Figure 60, the black areas in the alpha channel represent the transparent areas that will be filled by the background.

3. Select the preferred filter size from the drop-down list.

Note A larger filter size will result in a “softer” alpha channel. A smaller filter size will result in a “sharper” alpha channel.

4. Select the Clip Invert check box if you wish to invert the alpha channel (clip the luminance values above the designated clip value).

Using the Y-Delta Clip & Soften

This method creates an alpha channel based on a designated range of luminance (Y) values. Luminance values that are within the selected range are clipped from the image and then filled by the background.

Follow these steps to use the Y-Delta Clip & Soften method for creating an alpha channel:

1. Select the radio button to enable Y-Delta Clip & Soften.
2. Select the preferred luminance clip range using the Clip Value (max) and Clip Value (min) sliders. Luminance values within the selected range will be clipped.

Note As shown in Figure 60, the black areas in the alpha channel represent the transparent areas that will be filled by the background.

3. Select the preferred filter size from the drop-down list in the last section of the left panel (Figure 60).

Note A larger filter size will result in a “softer” alpha channel. A smaller filter size will result in a “sharper” alpha channel.

4. Select the Clip Invert check box if you wish to invert the alpha channel (clip the luminance values outside the designated range).

Saving Image with Key Channel Data

Follow these steps to save an image with the alpha (key) channel data as shown in the preview windows:

1. Select the Save Key Data check box in the Save File Options section of the **Still Image** tab.
2. Select File> Save as PNG Image File... from the menu bar.

Note The Portable Network Graphics (PNG) file type supports multiple alpha channels and is generally considered an ideal file format for saving large image files in the smallest possible file size with a minimum of data compression.

A Save as PNG Image File dialog appears.

3. Browse to the folder location in which you wish to save the image file.
4. Enter the preferred file name.
5. Click the **Save** button.

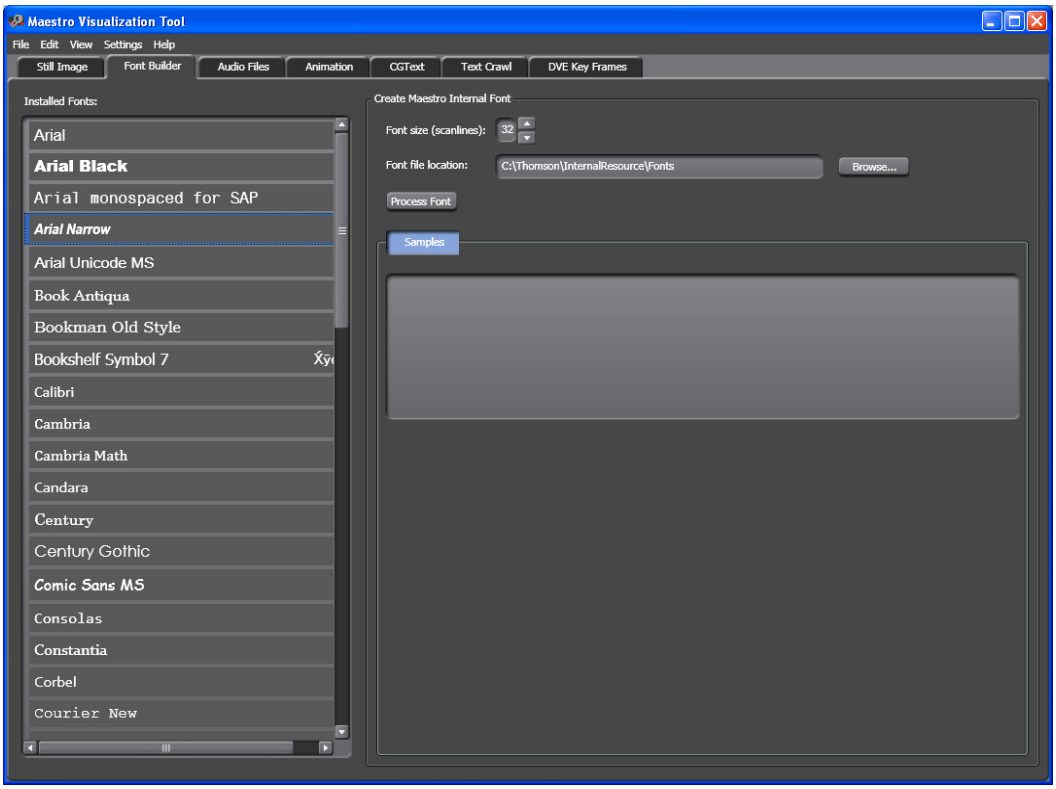
Font Builder Tab

The **Font Builder** tab displays the installed fonts on the left and includes a simple tool to create fonts (based on the installed fonts) that will be used in the elements. Windows True-Type fonts must be used.

Follow these steps to create a Maestro internal font in the Visualization Tool:

1. Click the **Font Builder** tab at the top of the interface. The Font builder interface will then appear (Figure 65).

Figure 65. Visualization Tool - Font Builder Tab

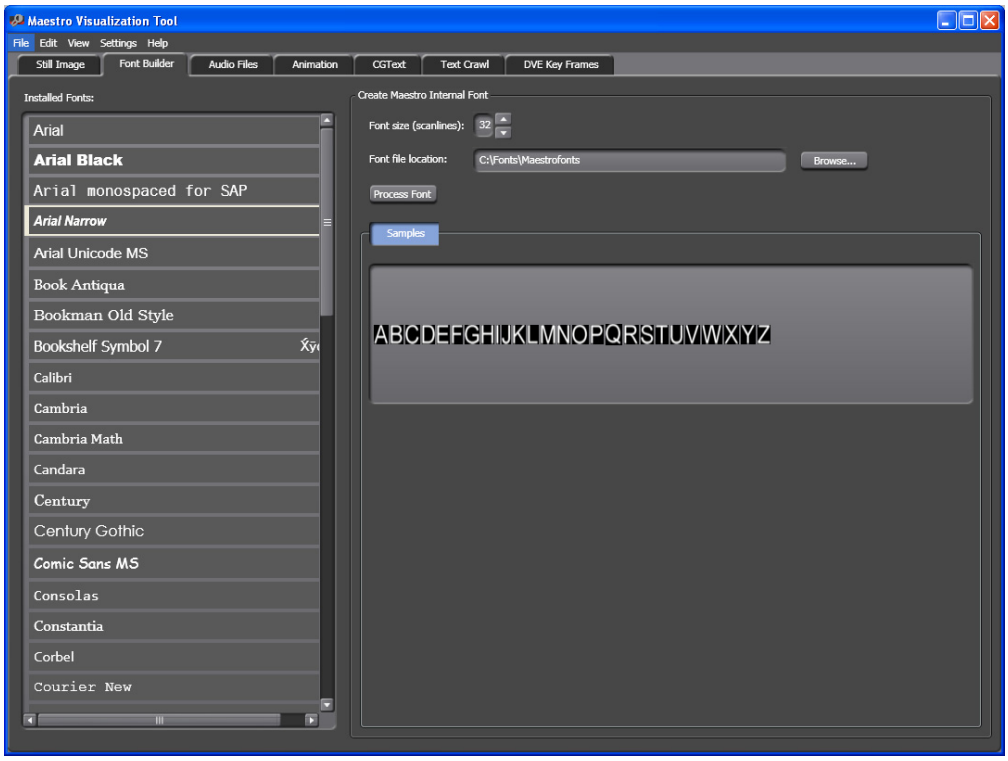


2. Click the preferred font in the Installed fonts section. Arial Narrow has been selected in the Figure 65 above.
3. Adjust the font to the prefer size by clicking the Font size (Scanlines) up or down arrows, on the right-half of the interface.

4. Click the **Process Font** button. Maestro's font tool will then begin to process the font.

   When the font has been processed the Save Font dialog will then appear (Figure 66).

Figure 66. Visualization Tool - Browse For Font Window



5. Click the **OK** button.

Importing a Font

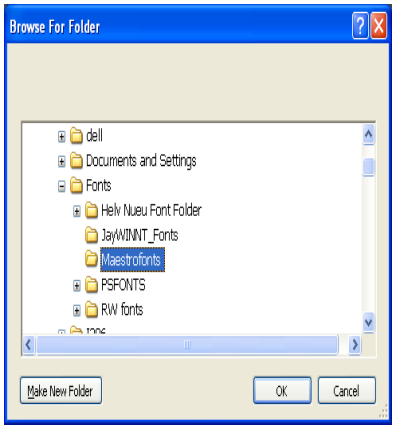
You may browse and search for a font if the preferred font name is not displayed.

Follow these steps to import a font in to the Visualization Tool:

1. Click the **Font Builder** tab at the top of the interface. The Font builder interface will then appear (Figure 65).

2. Click the **Browse...** button to navigate to the font location. The Browse For Font window will then appear (Figure 67).

Figure 67. Visualization Tool - Browse For Font Window

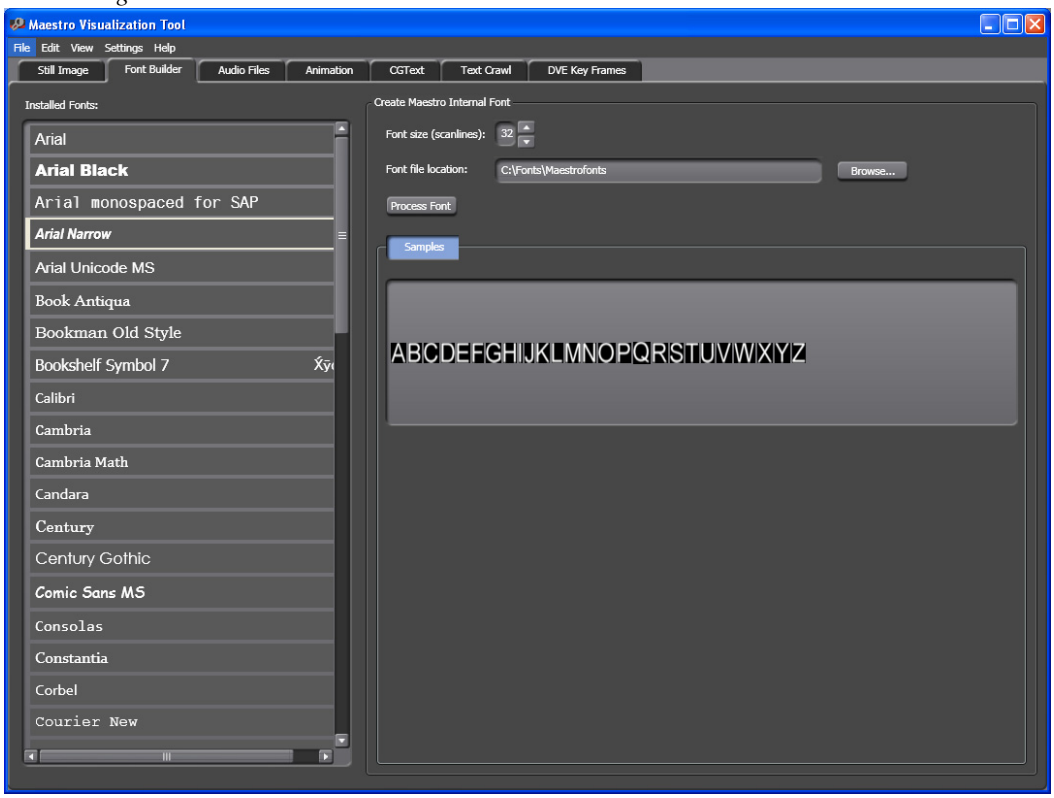


3. Select the folder that contains the fonts and then click the **OK** button. The location of the font will then appear in the *Font file location* field.

4. Click the **Process Font** button.

5. The font will then appear in the samples section (Figure 68).

Figure 68. Visualization Tool - Processed Font



Audio Files Tab

The **Audio Files** tab will allow you to preview an audio file. The file name and Audio information is displayed on the left-hand side of the interface. The Audio player is on the right-hand side. The maximum length of an audio element file, which contains 16-audio channels, is 30 seconds. The Maestro Visualization Tool will accept and convert the following audio file formats:

- Windows Audio format (.WAV)
- Broadcast WAV format (.WAV) - supporting up to 16-discreet audio channels

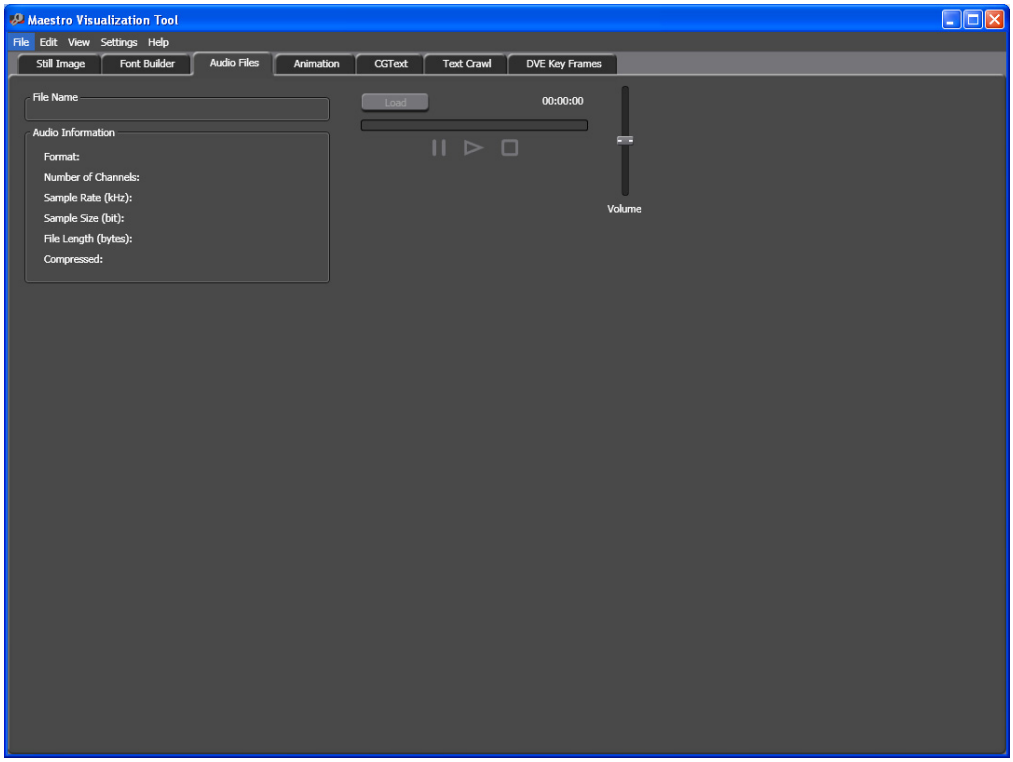
Channel Branding Audio Voice Over clips are played using 48-KHz sampling with 16-bits per sample per channel (this is commonly called CD quality). Any audio elements created outside of Maestro that are using more that 16-bits per sample will be rounded to 16-bits per sample for storage and playout.

Opening an Audio Element

Follow these steps to open an audio file in the Visualization Tool:

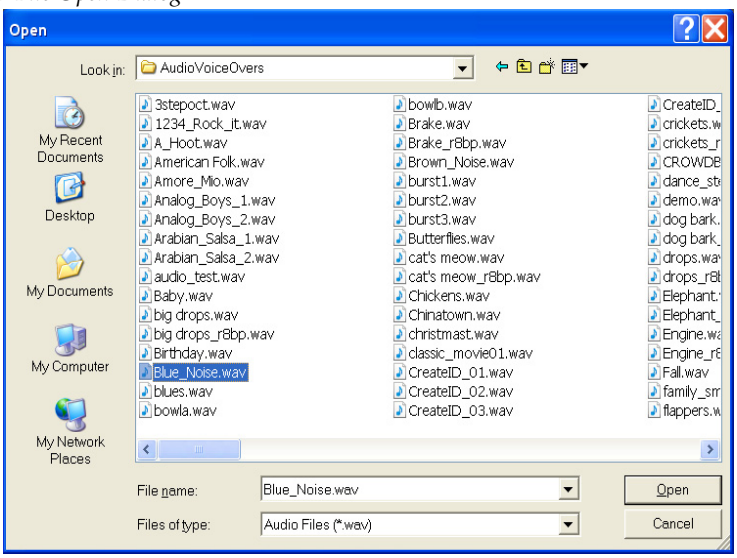
1. Click the **Audio Files** tab in the application interface. The **Audio Files** tab information is illustrated in Figure 69.

Figure 69. Branding Visual Tool - Audio Files Tab



2. Select File> Open File... from the menu bar, to open an audio file to preview. An Open dialog will then appear as shown in Figure 70.

Figure 70. File Open Dialog



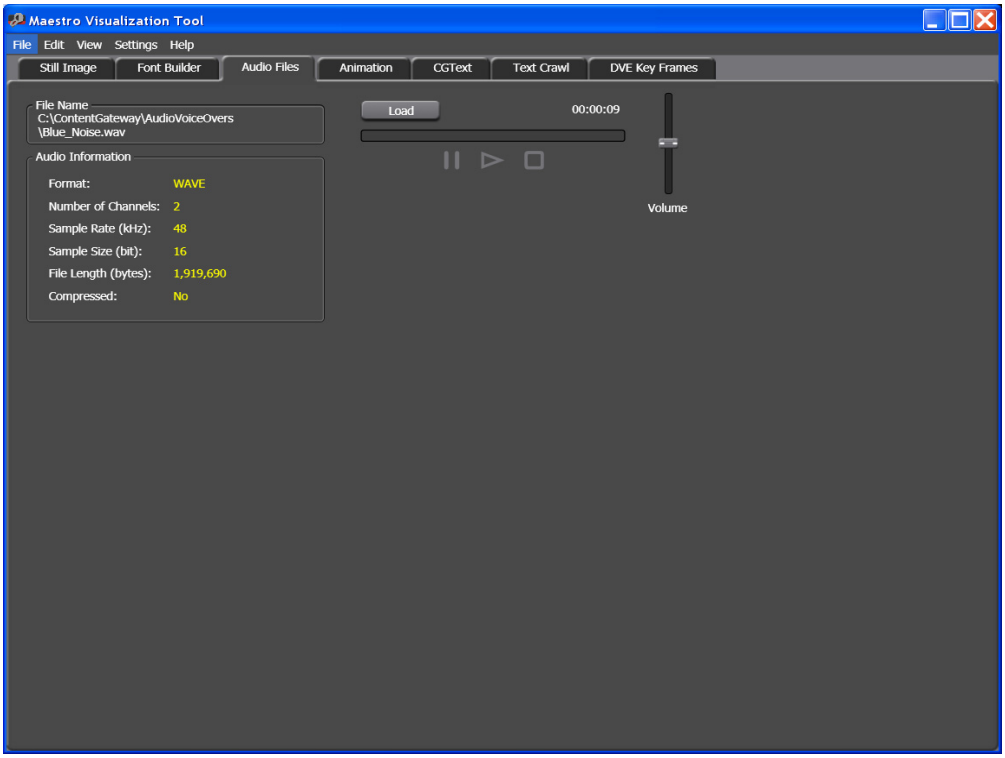
3. Browse to the folder location containing the file that you wish to open.

4. Select the preferred file from the folder and then click the **Open** button.

The selected audio file is then opened and the audio file information is displayed as illustrated in Figure 71.

Note WAV (.wav) or Broadcast WAV (which supports more than two audio channels) sampled at 48-KHz is the required audio file format for use with Maestro Channel Branding.

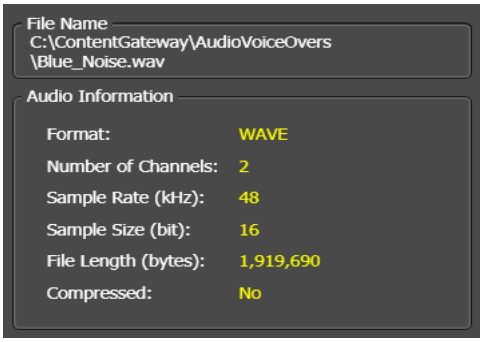
Figure 71. Visualization Tool - Audio File



Verifying the Audio File Information

The Visualization Tool displays detailed information regarding the file and allows verification of important file parameters such as, number of channels, sample rate and bit depth (Figure 72).

Figure 72. Audio File Information



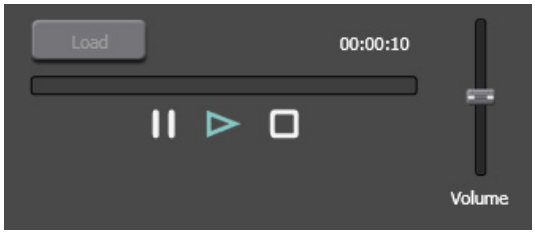
Playing Back an Audio File

The **Audio Files** tab contains an audio player which allows you to listen to and verify the audio file.

Follow these steps to listen to an audio file:

1. Click the **Load** button to load the opened file into the player. When a file is loaded into the Player, the **Load** button is grayed out and the Player controls are active as shown in Figure 73.

Figure 73. Audio File Player Controls



2. Click the **Pause**, **Play** and **Stop** buttons as needed to listen to the file.
3. Move the Volume slider to adjust the volume up (louder) or down (quieter).

Animation Tab

An Animation Sequence is created as a sequence of still images and may be associated with an Audio Voice Over element for a combined playout. The maximum length of an animation file is dependent on the cache RAM space and the physical screen size of the animation images. An Animation Sequence is played in its entire length unless interrupted by a program or effect transition. The Animation Sequence can be looped.

The **Animation** tab will allow you to preview an animation file. The file name and File information is displayed on the left-hand side of the interface. The Animation player is on the right-hand side.

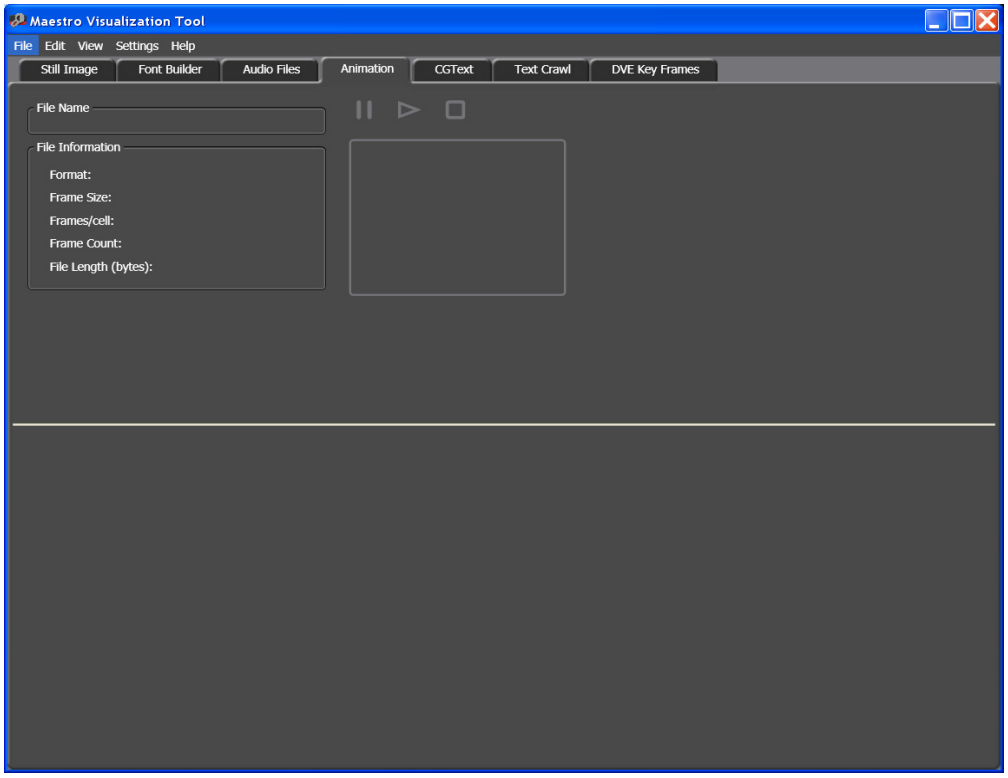
Opening an Animation File

Follow these steps to open an animation file in the Visualization Tool:

1. Click the **Animation** tab in the application interface.

The **Animation** tab information is illustrated in Figure 74.

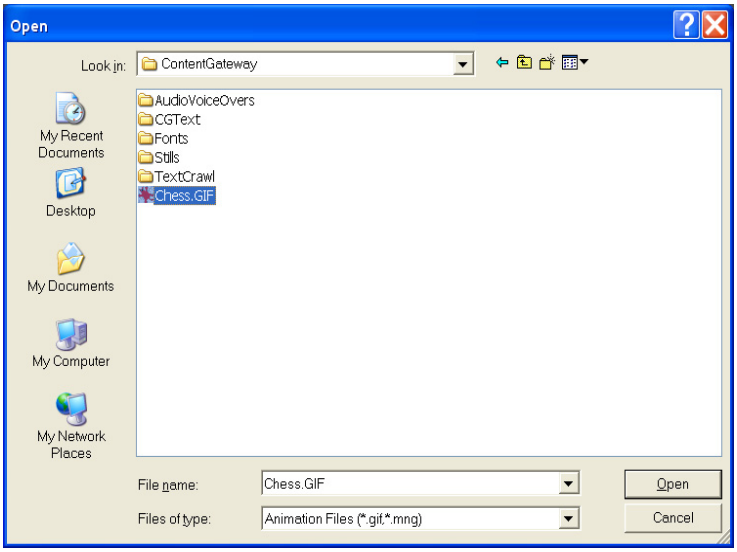
Figure 74. Branding Visual Tool - Animation Tab



2. Select File> Open File... from the menu bar, to open an animation file to preview.

An Open dialog will then appear as shown in Figure 75.

Figure 75. Animation File Open Dialog



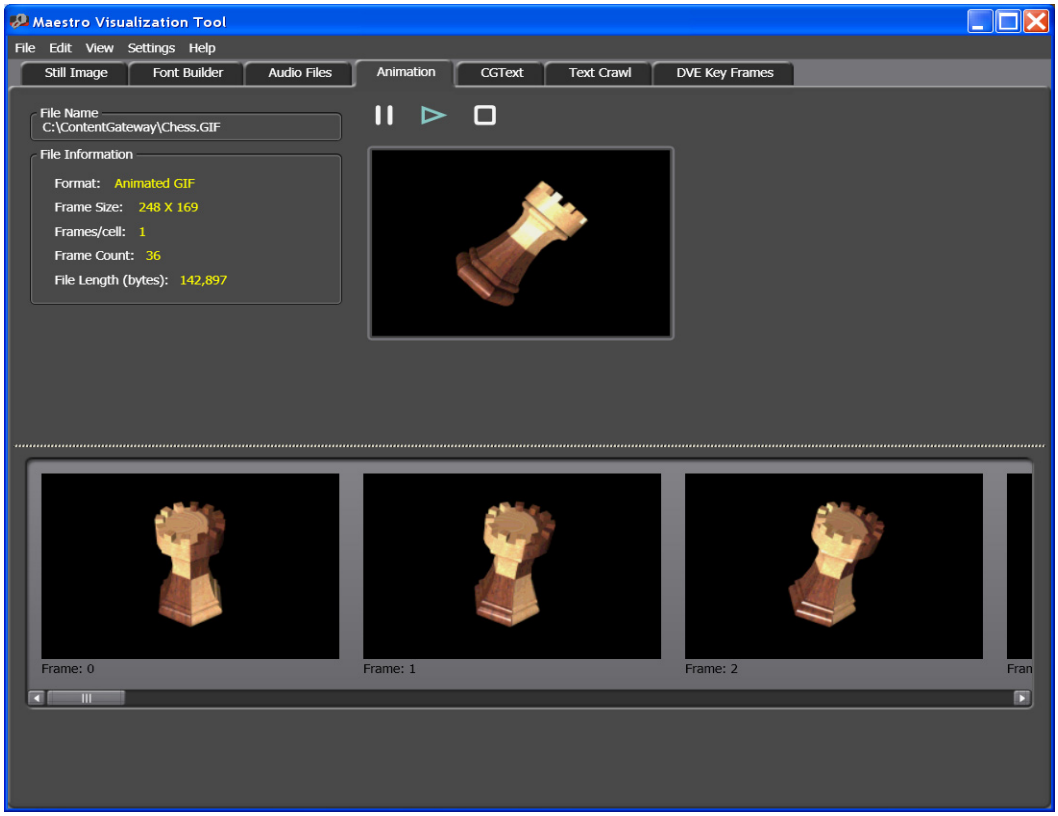
3. Browse to the folder location containing the file that you wish to open.

4. Select the preferred file from the folder and then click the **Open** button.

The selected animation file is then opened and the file information is displayed as illustrated in Figure 76.

Note Animation files can be large in size, it may take some time for the animation file to be loaded and displayed.

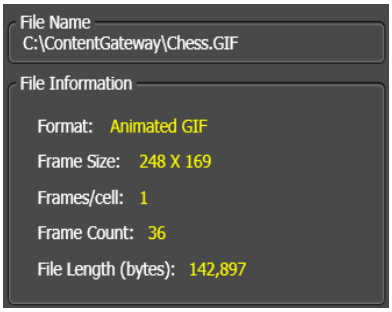
Figure 76. Visualization Tool - Open Animation File



Viewing Animation File Information

The Visualization Tool displays detailed information regarding the file and allows verification of important file parameters such as format, frame size, frame count, and file size (Figure 76).

Figure 77. Animation File Information



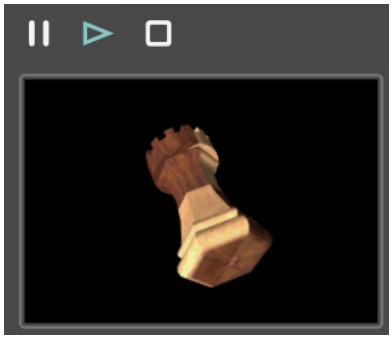
Verifying an Animation File

The **Animation** tab contains an animation player which allows you to view to and verify the animation file.

Follow these steps to view to an animation file:

1. Load an animation file into the player as shown in Figure 78. The steps to load a file are covered in the *Opening an Animation File* above.

Figure 78. Animation File viewer Controls



2. Click the **Pause**, **Play** and **Stop** buttons as needed to view and verify the file.

CG Text Tab

CG Text elements are the combination of static or dynamic text, graphic still images and Character Generator fonts. Each CG Text element may include the following combinations: sixteen (16) Still Image file references, four (4) Character Generator font references, and eight (8) Text or Image Boxes (any combination up to the maximum of eight definitions).

The CG Text components are automatically updated at a periodic rate that is defined during element configuration. For example, the time/temperature display, which consists of a station logo and has the time and temperature's text superimposed over the logo.

This section will describe how to Select the Video Standard, add an Empty box, add a Text box, and an Image box.

Selecting the Video Standard

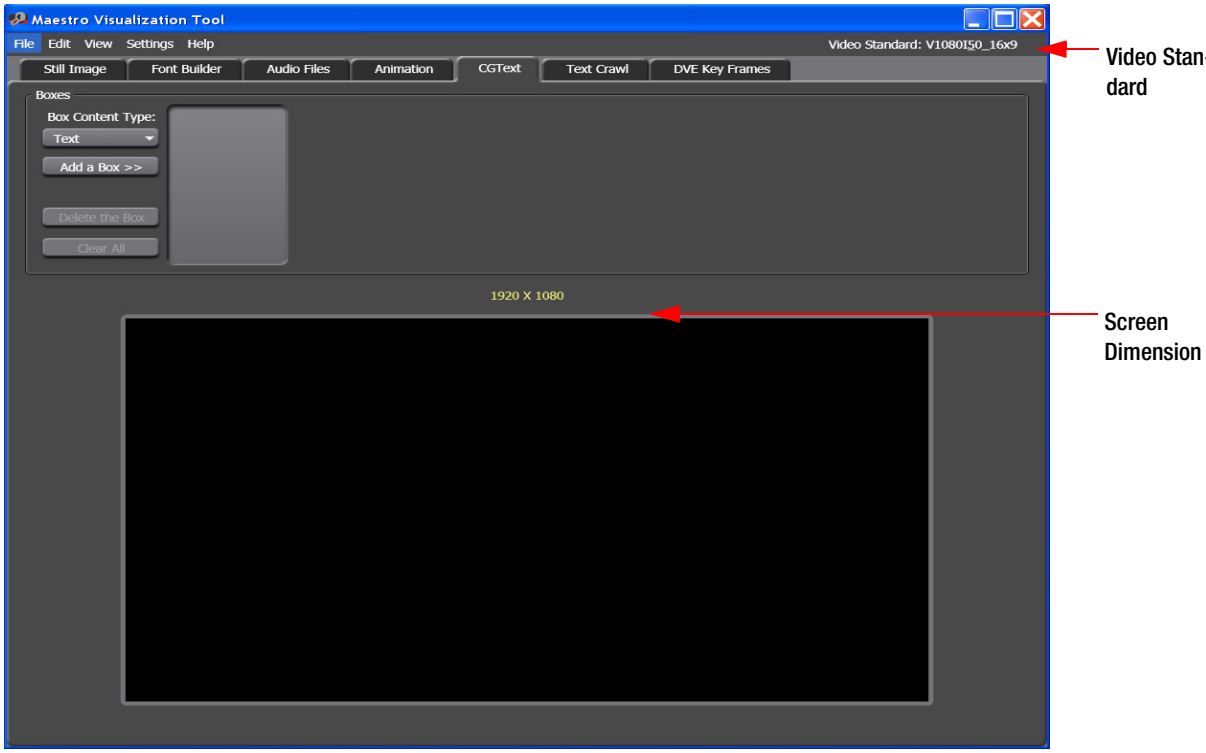
The CG Text elements are saved as a template. This template is displayed according to the selected video standard. A different template will need be created for each video standard for which you want to broadcast.

Follow these steps to select the video standard:

1. Click the **CGText** tab.
2. Select the preferred video standard from the Video Standard menu in the Settings menu (Menu Path: Settings> Video Standard).

   The display area will change and the screen dimension will be displayed above the screen and the Video Standard is shown on the right side of the Menu bar.

Figure 79. Visualization Tool - Video Standard Selected



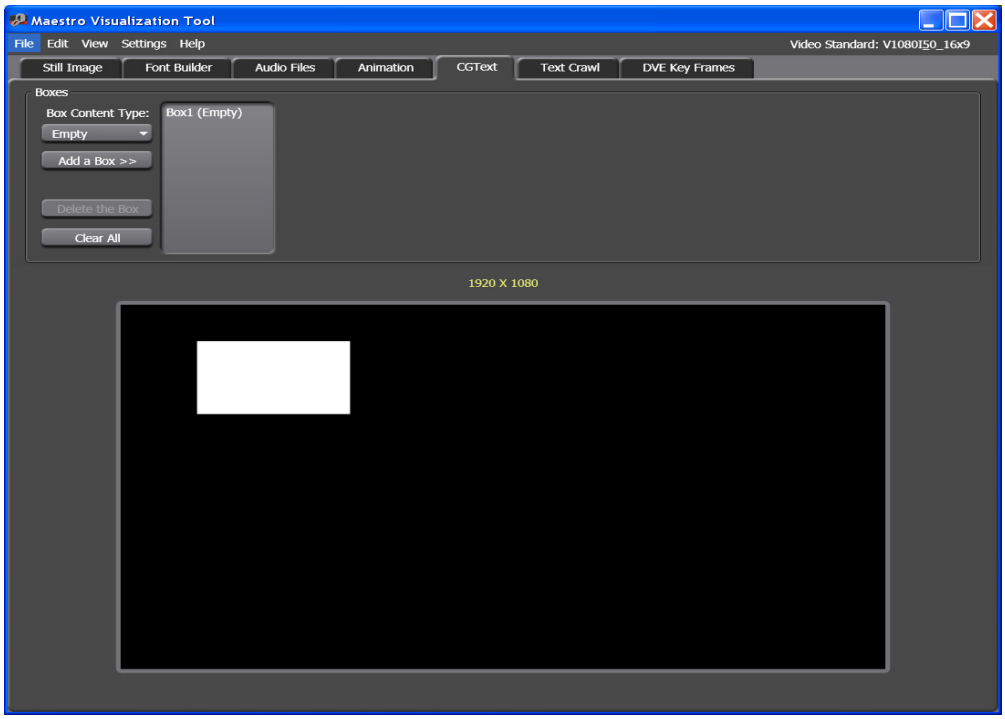
Now that the Video standard has been selected, the CGText template can be created.

Adding an Empty Box

Follow these steps to add an empty box:

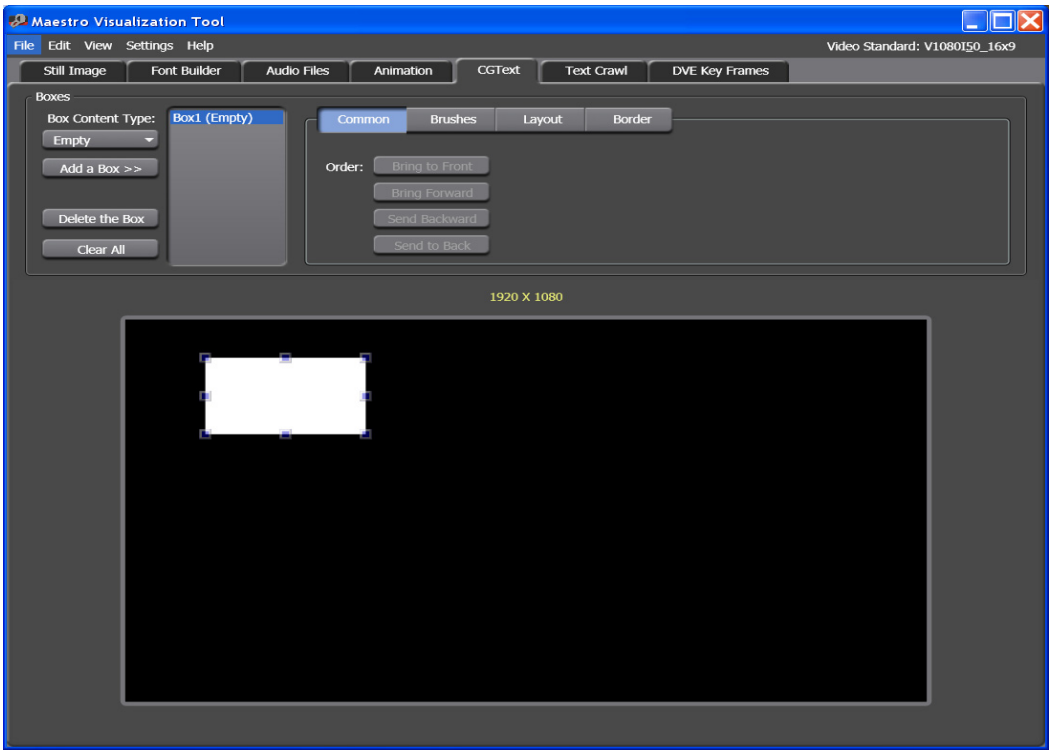
1. Select the **Empty** option from the Box Content Type drop-down list in the Boxes area of the interface.
2. Click the **Add a Box >>** button. The text, "Box1 (Empty)" will appear to the right of the button and a box will appear in the display screen (Figure 80).

Figure 80. Visualization Tool - Add a Box



3. Click the text, “Box1 (Empty).” The Box Configuration section will then appear. This section has four buttons at the top: Common, Brushes, Layout, and Brushes (Figure 81).

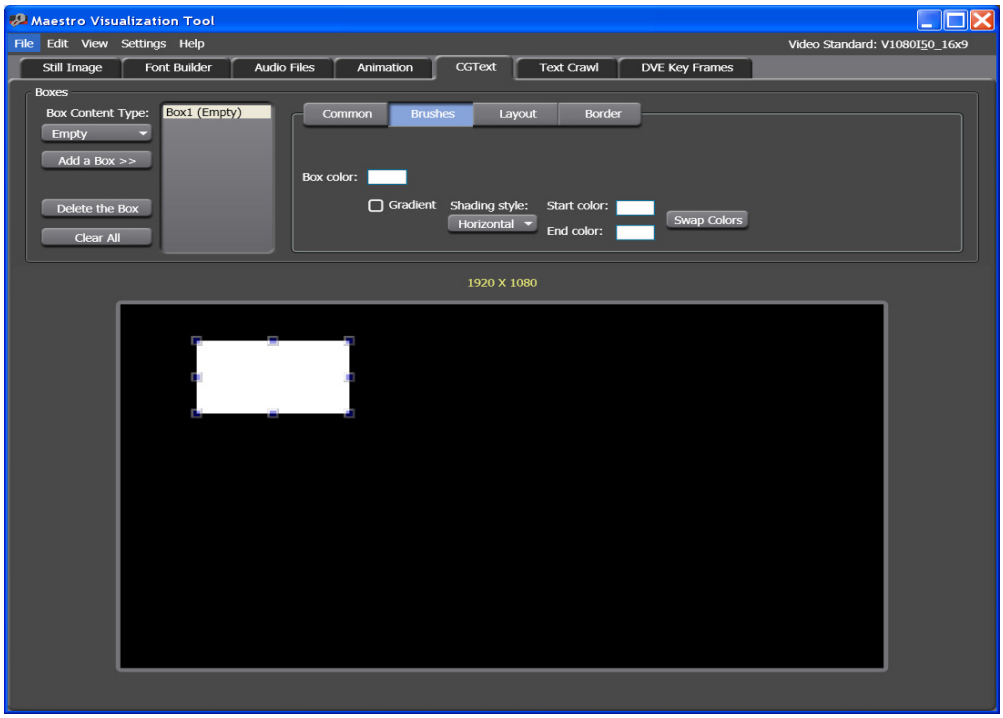
Figure 81. Visualization Tool - Box Configuration Section



Since this box is the only one in the display area, the buttons in **Common** tab are inactive.

4. Click the **Brushes** button. The configuration settings will change to show color options (Figure 82).

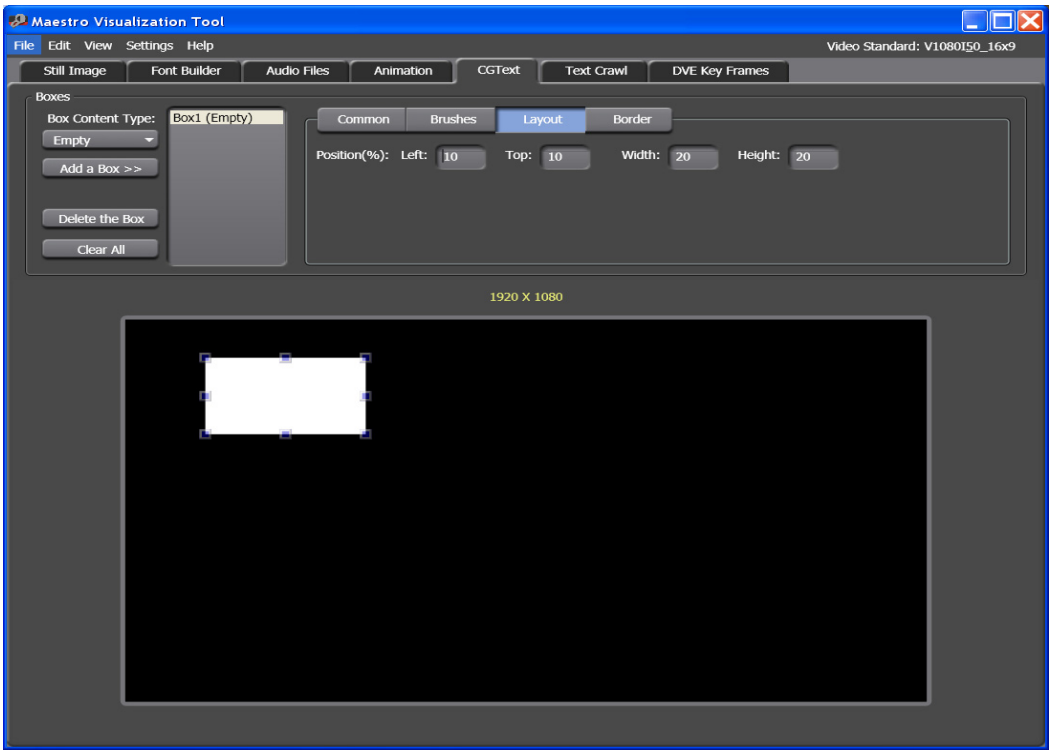
Figure 82. Visualization Tool - Box Configuration Section



5. Adjust the color of the Empty box. The steps to adjust color are described in the *Adding an Image Box* section.

6. Click the **Layout** button. The configuration settings will change to show position options for the Empty box (Figure 82).

Figure 83. Visualization Tool - Box Layout Configuration Section

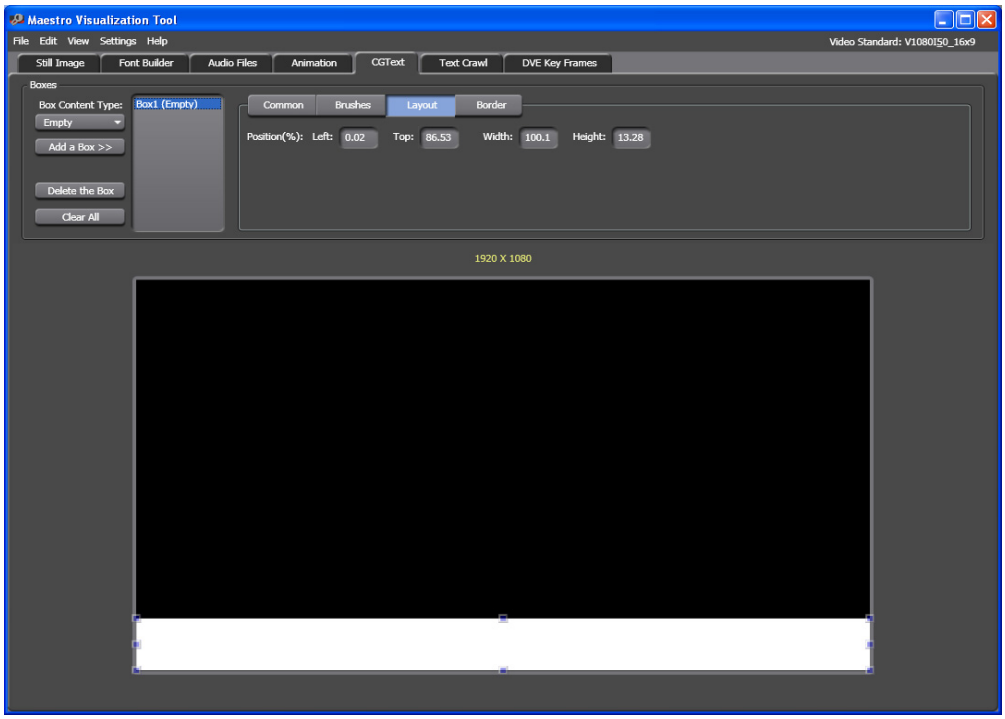


7. Drag the box to the location that you prefer. The information in the Position% section will change to show the current position of the box. You can also change the position by entering the information in the *Left* and *Top* fields.

8. Change the size of the box by clicking on a corner and dragging. The information in the Position% section will change to show the current size of the box. You can also change the size by entering the information in the *Width* and *Height* fields.

   The result of these changes can be seen in Figure 84. The numbers reflect the position of the Empty box's top and left edge from the top and left edges of the Display area. For example, in Figure 84 the box has been stretched to the left edge so the value in the *Left* field is zero (0). The height of the box is 20% of the Display area, so the *Top* field shows 80.03, which means the top of the box is about 80% away from the top of the Display area.

Figure 84. Visualization Tool - Box Layout Position



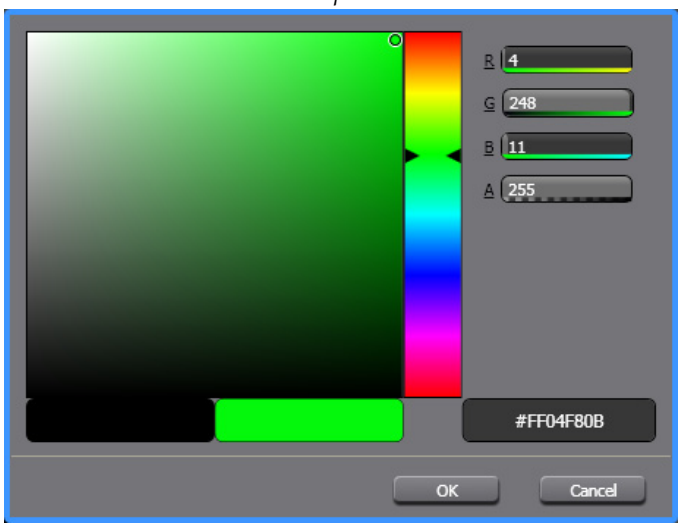
9. Click the **Border** button. The configuration settings will change to show the size and color options for a border around the box.

10. Select the **Uniform border** check box. All the size values will be proportional to the number that is entered in the *Left* field.

11. Click the color swatch by the text Color:. A new dialog will then open. Select the color by clicking in the *color* field. For example Figure 85 shows that green has been selected.

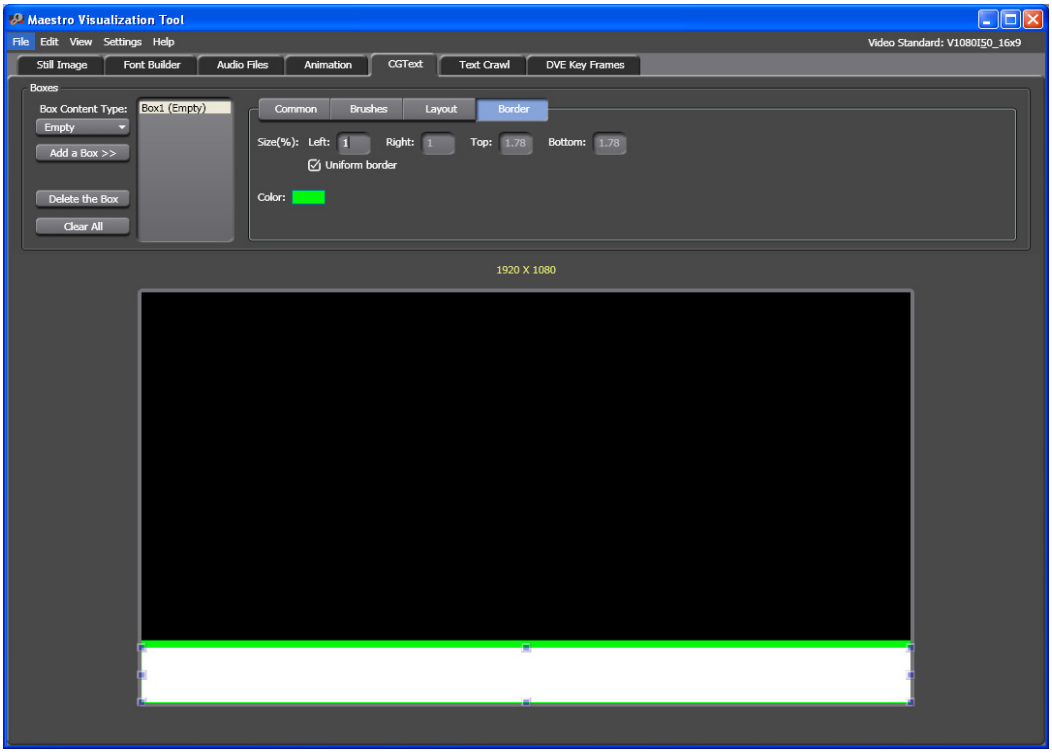
Note You can also change the color by entering the known RGB values in the respective fields.

Figure 85. Visualization Tool - Box Color Options



12. Click the **OK** button. The Color dialog will close and the color will then be added to the Empty box (Figure 86).

Figure 86. Visualization Tool - Color Applied to the Border



Adding a Text Box

A Text box defines the display area that the text will appear and it may contain dynamic elements.

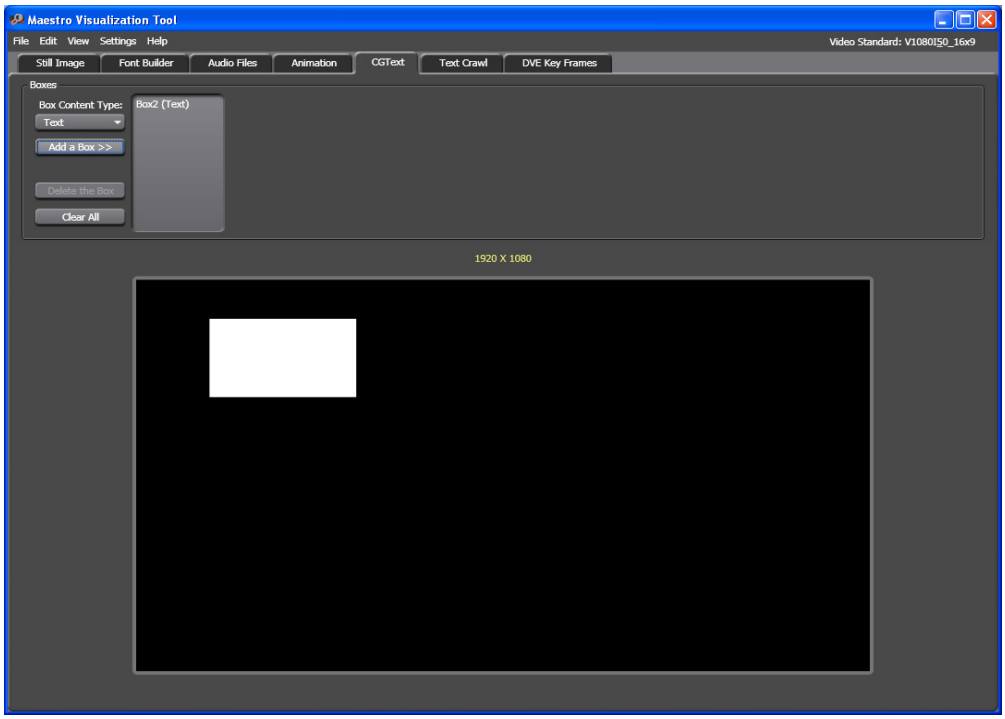
Follow these steps to add a Text box:

1. Select the **Text** option from the Box Content Type drop-down list in the Boxes area of the interface.

2. Click the **Add a Box >>** button. The text, "Box1 (Text)" will then appear to the right of the button and a box will appear in the display screen (Figure 80).

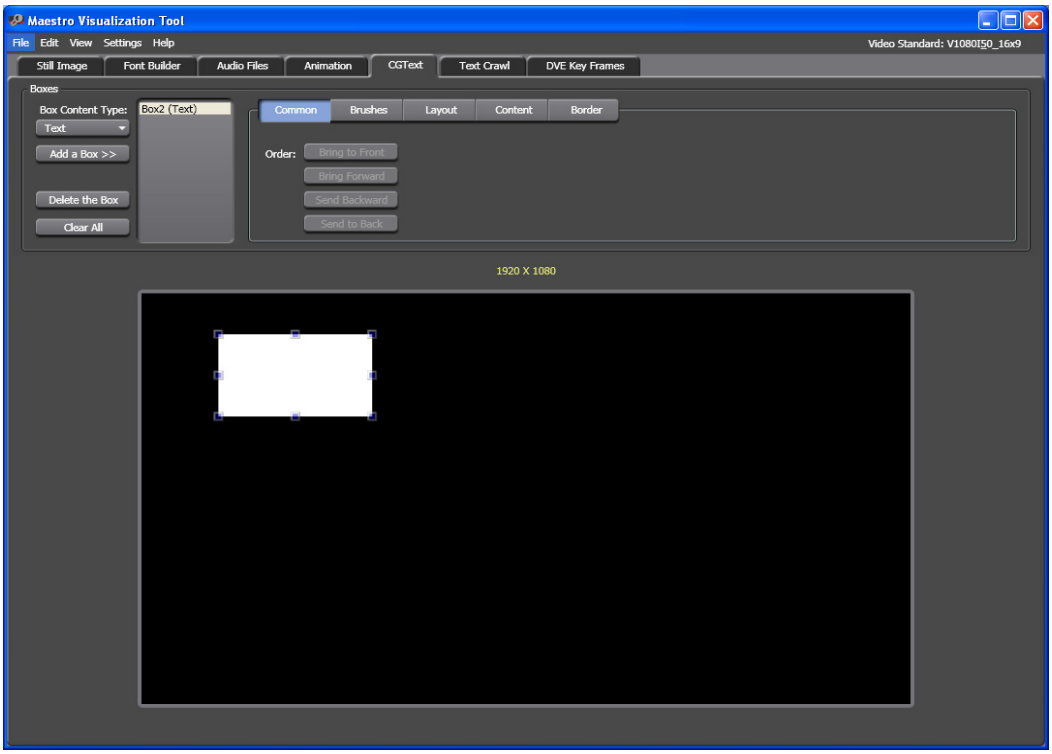
Note The number after box (*Box1 (Text)*) in the above text indicates that the box is the first box. Additional boxes will be numbered sequentially, regardless of the type of box.

Figure 87. Visualization Tool - Add a Text Box



3. Click the text, "Box1 (Text)." The Box Configuration section will then appear. This section has four buttons at the top: Common, Brushes, Layout, and Brushes (Figure 81).

Figure 88. Visualization Tool - Text Box Configuration Section

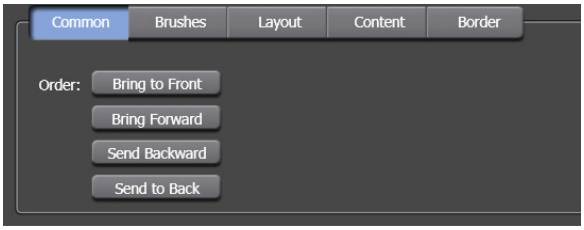


Changing the Text Boxes Position

Since this box is the only one in the display area, the buttons in **Common** tab are inactive.

If there were more than one box, the buttons in the Order section would be active (Figure 89).

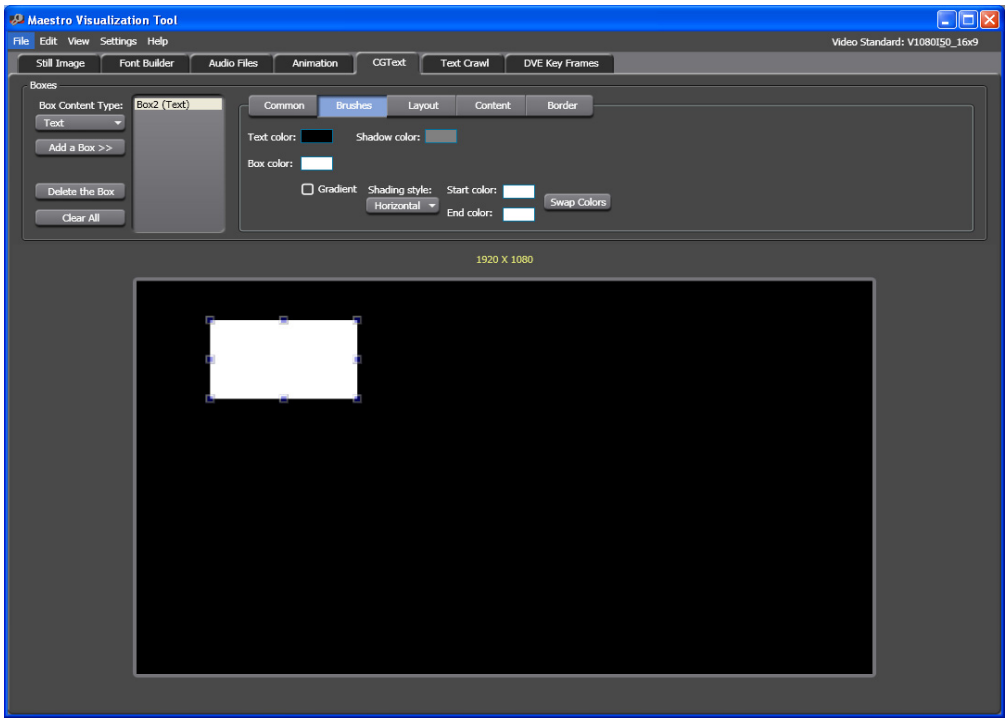
Figure 89. Visualization Tool - Text Box Order Buttons are Active



Select the button that would place the Text box in the position that you would want.

4. Click the **Brushes** button. The Configuration settings will change to show color options (Figure 90). The settings are similar to the Empty box settings except that the Text color and the Shadow color options are available.

Figure 90. Visualization Tool - Text Box Brushes Configuration Section



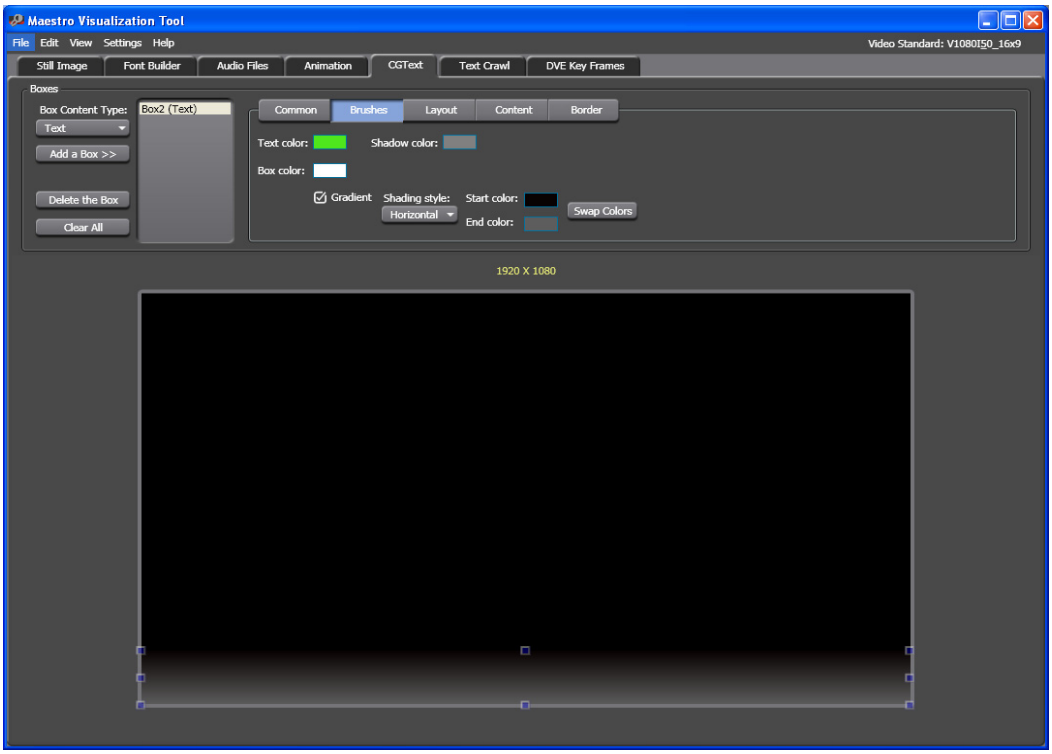
Changing the Text Color

The color of the Text and the shadow can be changed to meet your business standards.

Follow these steps to change the text color:

1. Click the Text color: swatch. The Color dialog (Figure 85) will then appear. Select the color that you want for the text. For more information about this process see Step 11 above in the *Adding an Empty Box* section.
2. Click the Shadow color: swatch. The Color dialog (Figure 85) will then appear. Select the color that you want for the shadow.
3. Click the Box color: swatch. The Color dialog will then appear. Select the color that you want for the box. Do not select this color if you want the Text box to have a gradient.
4. Select the **Gradient** check box.
5. Select the preferred style from the Shading Style drop-down list. In the example below the Horizontal option was selected.
6. Click the Start color: swatch. The Color dialog will then appear. Select the color that you want to start the gradient.
7. Click the End color: swatch. The Color dialog will then appear. Select the color that you want to end the gradient.

Figure 91. Visualization Tool - Text Box Brushes Color Gradient Applied



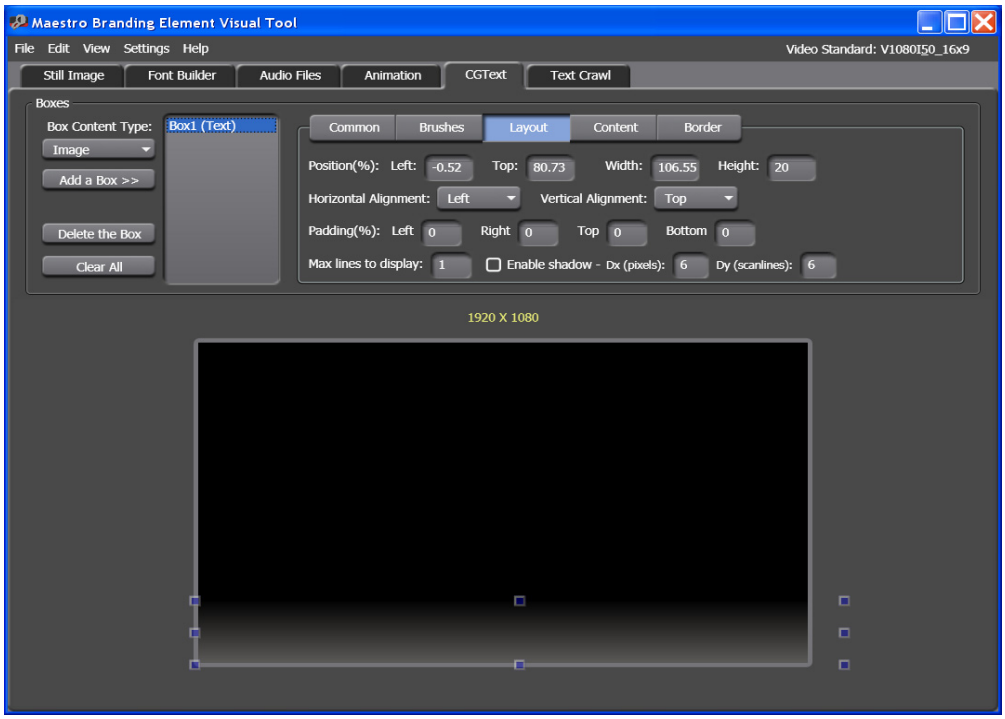
Setting the Text Box's Position and Alignment

The **Layout** tab is where you can change the Position (%) settings for the text box and the text alignment within the Text box.

Follow these steps to set the Text box's position:

1. Click the **Layout** tab. The Configuration settings will then appear.

Figure 92. Visualization Tool - Text Box Layout Tab



2. Drag the box to the location that you prefer. The information in the Position% section will change to show the current position of the box. You can also change the position by entering the information in the *Left* and *Top* fields.

3. Change the size of the box by clicking on a corner and dragging. The information in the Position% section will change to show the current size of the box. You can also change the size by entering the information in the *Width* and *Height* fields.

4. Select the text's left and right alignment from the Horizontal Alignment drop-down menu.

5. Select the text's top to bottom alignment from the Vertical Alignment drop-down menu.

6. Enter the preferred distance or spacing between the Text box boundaries and the text inside the box by entering the preferred number in the *Left*, *Right*, *Top*, and *Bottom* fields.

7. Enter the number of lines you would like to be displayed in the *Max lines to display:* field.

8. Select the Enable shadow check box if you want the text to have a shadow. Enter the distance that you want to move the shadow left or right in the *Dx (pixels)* field. Enter the distance that you want to move the shadow up or down in the *Dy (scanlines)* field.

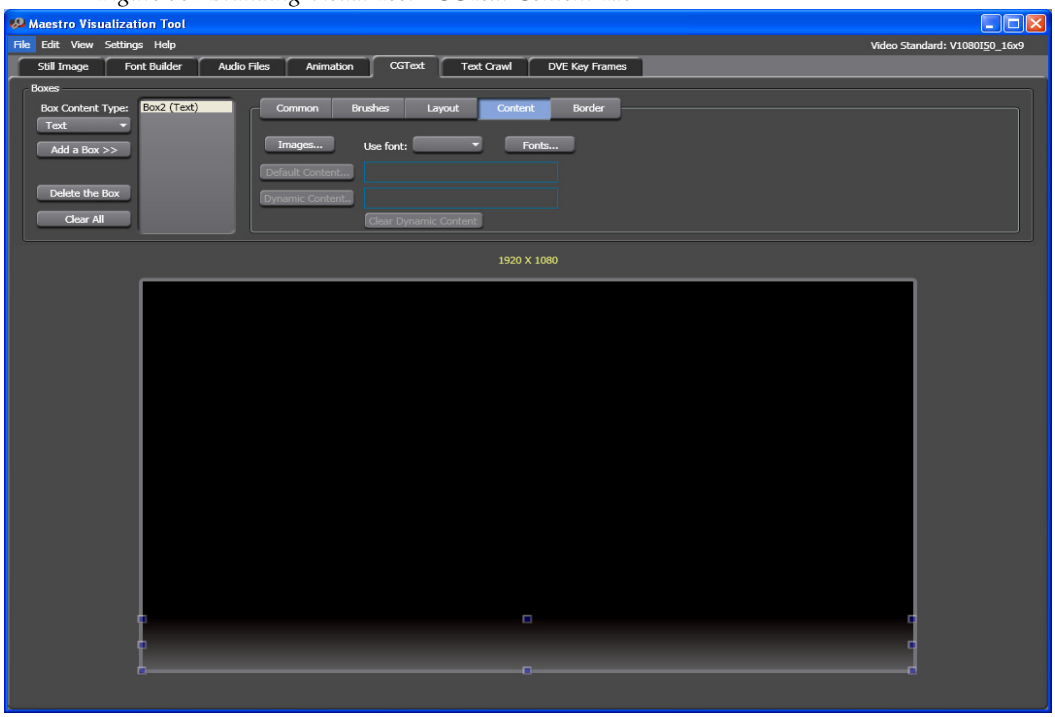
Adding Content to the Text Box

The **Content** tab is where the elements (text and images) are added to the template.

Follow these steps to add content to the Text box:

1. Click the **Content** button. The content settings will then appear. These settings are shown in Figure 93.

Figure 93. Branding Visual Tool - CGText Content Tab



2. Click the **Images** button to add images. The Available Images dialog will then appear.

Figure 94. Branding Visual Tool - Example of Images

3. Click the **Add Image(s)** button. The Open dialog will then open.

4. Navigate to the preferred file and then click the **Open** button. The image will then appear in the Available Images dialog (Figure 115).

Note You can only add 16 images, after you have reached the maximum number the Add Image(s) button will be disabled. You must remove images before you can add more images. Select the image to remove and then click the Remove Image button.

Figure 95. Branding Visual Tool - Available Images with A New Image

5. Click the **Close** button

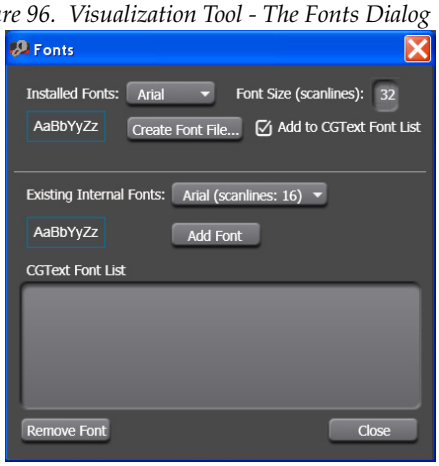
Adding a Font

The Fonts dialog allows you to change the current font's name and size. The font is selected from a drop-down list of the installed True-Type fonts.

Follow these steps to add a font to the CGText Font list:

1. Click the **Fonts** button. The Fonts dialog will then appear (Figure 96).

Figure 96. Visualization Tool - The Fonts Dialog



2. Click the Installed Fonts drop-down list. Arial has been selected in Figure 96 above.
3. Adjust the font to the preferred size by entering the size in the *Font size (Scanlines)* field.

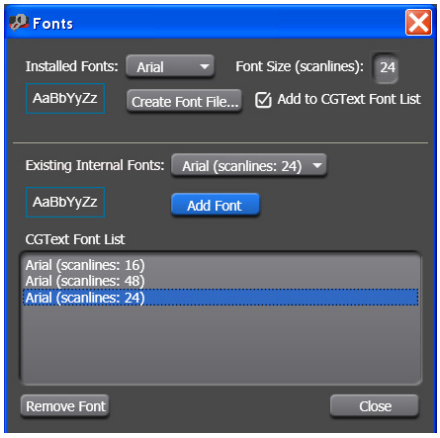
Note The Font size must be set for each size of font that you want to use. The size should change with every Video Standard change.

4. Select the **Add to CGText Font List** check box.
5. Click the **Create Font File** button. Maestro's font tool will then begin to process the font. The Save Font dialog will then appear (Figure 97).

Figure 97. Visualization Tool - The Save Font Dialog

6. Click the **OK** button to close the dialog.
7. Select the new font from the Existing Internal Fonts drop-down list in the lower section of the dialog.
8. Click the **Add Font** button. The font will then appear in the CGText Font List (Figure 98).

Figure 98. Visualization Tool - The Font Dialog Font Added



9. Click the **Close** button.

   The fonts that you created are now listed in the Use font drop-down list.

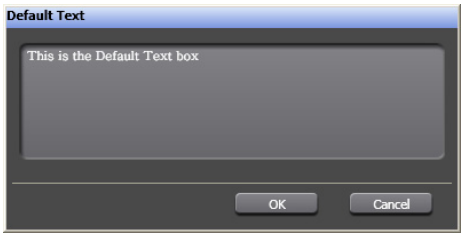
Adding Default Content

The Default content is the text or images that will be displayed if the Dynamic content has not been defined or is not available.

Follow these steps to add the Default content.

1. Click the **Default Content** button to add the text that will be displayed. The Default Text dialog will then appear (Figure 99).

Figure 99. Branding Visual Tool - Default Text



2. Enter the text that you want displayed in the field in the top section and then click the **OK** button.

   The Default Text dialog will then close and the text that was entered in the Default Text dialog will be displayed in the field by the **Default Content** button.

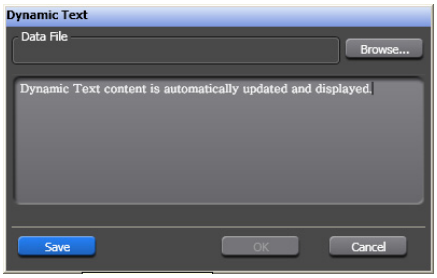
Adding Dynamic Content

Dynamic Text content is stored in a .DAT file and is automatically updated and displayed.

Follow these steps to add Dynamic text:

1. Click the **Dynamic Content** button. The Dynamic Text dialog will then appear (Figure 100).

Figure 100. Visualization Tool - The Dynamic Text Dialog



2. Enter the text that will be used in the Dynamic text file.
3. Click the **Save** button. The Select Data File Name dialog will then appear.
4. Enter a name that the file will be called in the *File name* field and then click the **Save** button. The Dynamic Text dialog will then reappear with the **OK** button active.

Note Dynamic files are named with the .DAT file extension. For example, dynamic text.DAT.

5. Click the **OK** button. The location of the Dynamic text file will then appear in the field next to the **Dynamic Text** button in the Properties section.

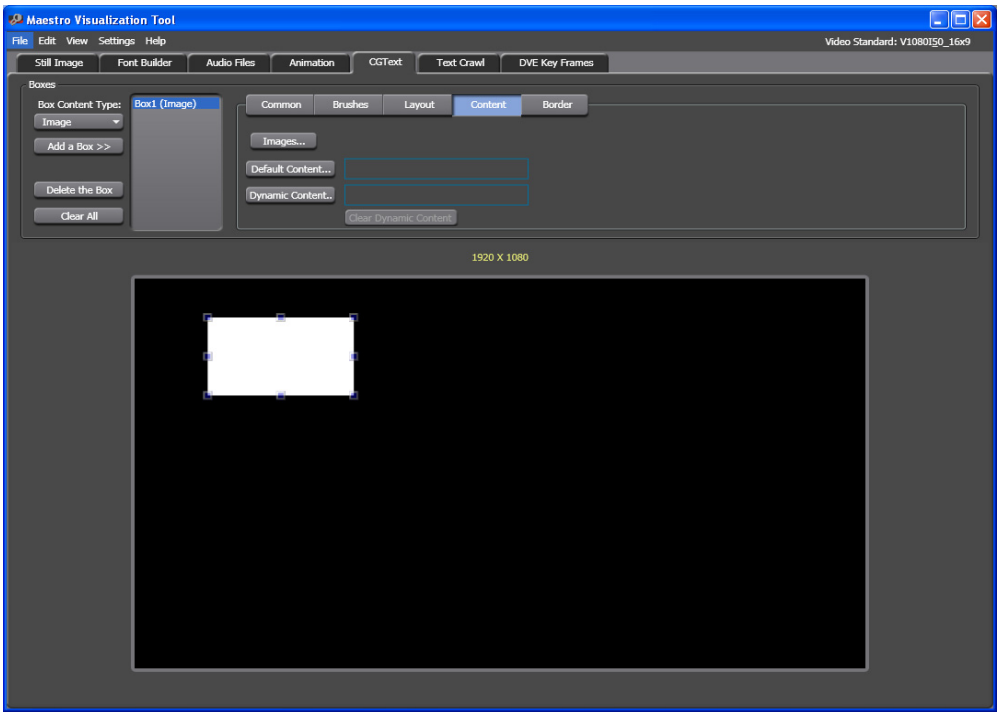
Adding an Image Box

An Image box defines the display area where the images will appear and it may contain dynamic elements.

Follow these steps to add an Image box:

1. Select the **Image** option from the Box Content Type drop-down list in the Boxes area of the interface.
2. Click the **Add a Box >>** button. The text, "Box1 (Image)" will then appear to the right of the button and a box will appear in the display screen.
3. Click the text, Box1 (Image). The Box Configuration section will then appear. This section has four buttons at the top: Common, Brushes, Layout, and Brushes (Figure 101).

Figure 101. Visualization Tool - Add an Image Box



Changing the Image Boxes Position

Arrange the box's order by clicking the appropriate button. That is, Bring to Front, Bring Forward, Send Backward, or Send to Back. Since this image box is the only one in the display area, the buttons in **Common** tab are inactive.

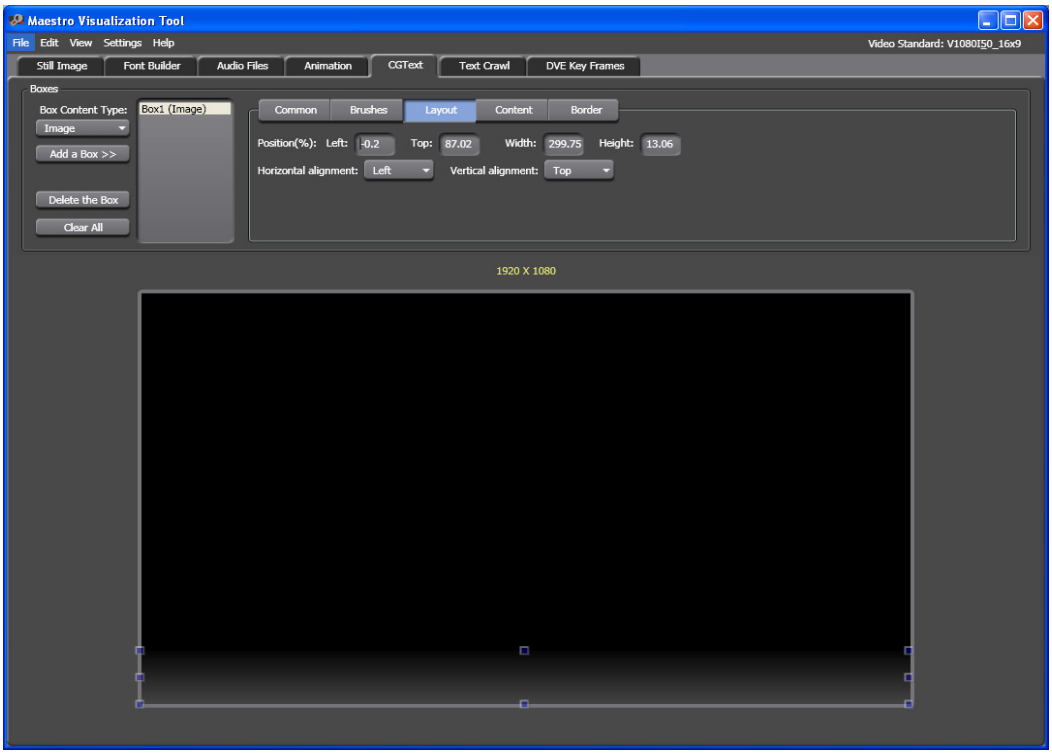
Changing the Image Boxes Color

Click the **Brushes** button. The Configuration settings will change to show color options (Figure 109). The settings are similar to the Empty box settings. Follow the steps in the *Adding an Empty Box* section to change the color or apply a gradient.

Changing the Image Boxes Position and Alignment

Click the **Layout** button. The Configuration settings will change to show the Position percentage and Text alignment options (Figure 102). The settings are similar to the Empty box settings. Follow the steps in the *Adding an Empty Box* section to change the Position of the image box or the alignment of the Text.

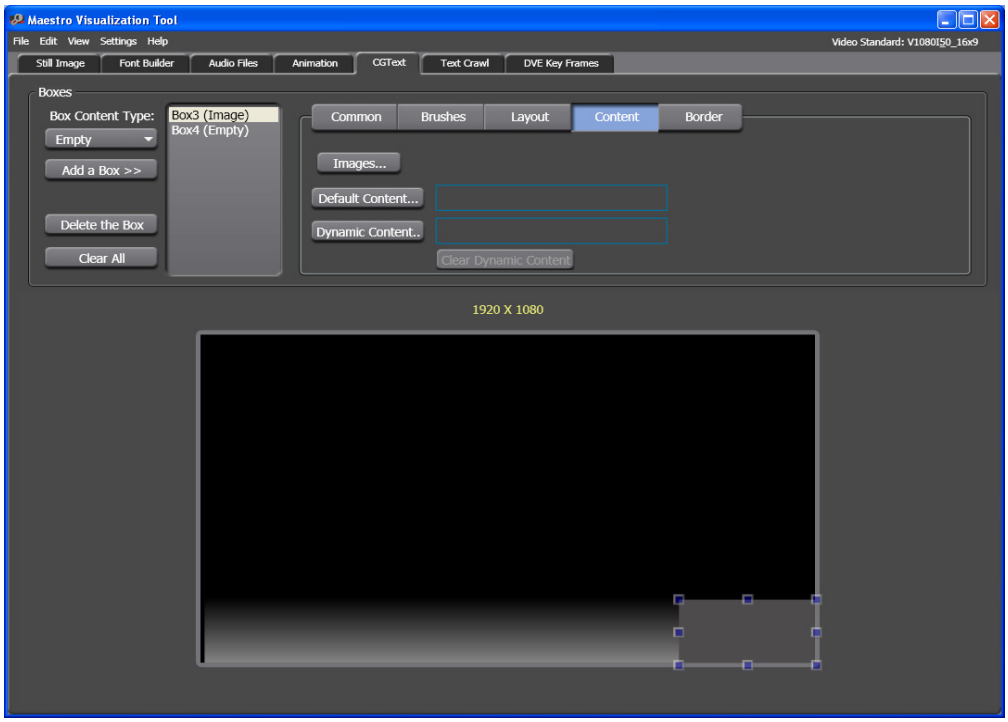
Figure 102. Visualization Tool - The Layout Tab on the Image Box



Adding Content in the Image Boxes

Click the **Content** button. The Configuration settings will change to show the **Images**, **Default Content**, and the **Dynamic Content** buttons (Figure 103).

Figure 103. Visualization Tool - The Content Tab on the Image Box



Follow these steps to add images:

1. Click the **Images. ..** button to import the images that you would like to use. The Available Images window will then open.
2. Click the **Add Image(s)...** button. The Open dialog will then open.
3. Select the images that you want to use and then click the **Open** button. The selected images will then be added to the Available Images window.
4. Click the **Close** button.

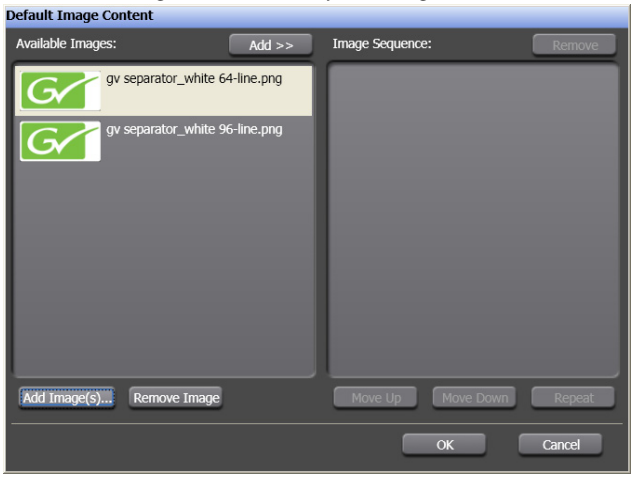
Adding Default Content

The Default content is the image or images that will be displayed if the Dynamic content has not been defined or is not available.

Follow these steps to add the Default content.

1. Click the **Default Content** button to add the images that will be displayed. The Default Image Content window will then appear (Figure 104).

Figure 104. Branding Visual Tool - Default Image Content Window

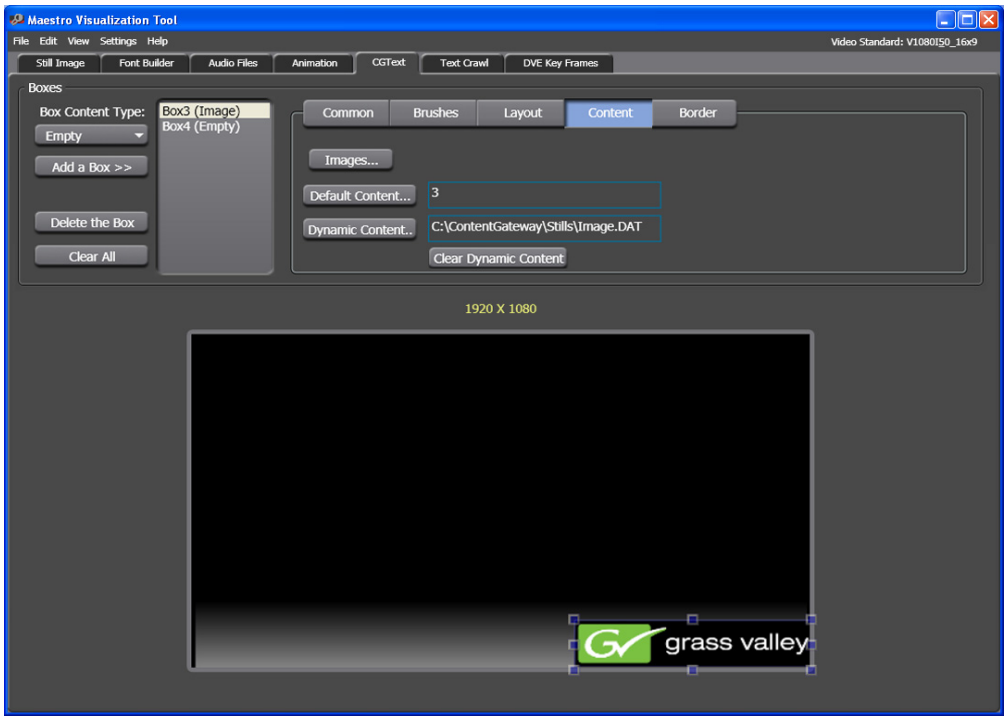


2. Select the images that you want to add from the Available Images column.

3. Click the **Add>>** button. The selected image will then be seen in the Image Sequence column.

4. Click the **OK** button. The Default Image Content window will then close and the image will be in the Image box (Figure 105).

Figure 105. Visualization Tool - The Content Tab on the Image Box



The field by the **Default Content** button will display a number, the #3 in the example above. This number is the reference for the selected image. The reference number is taken from the image's location in the Default Image Content window.

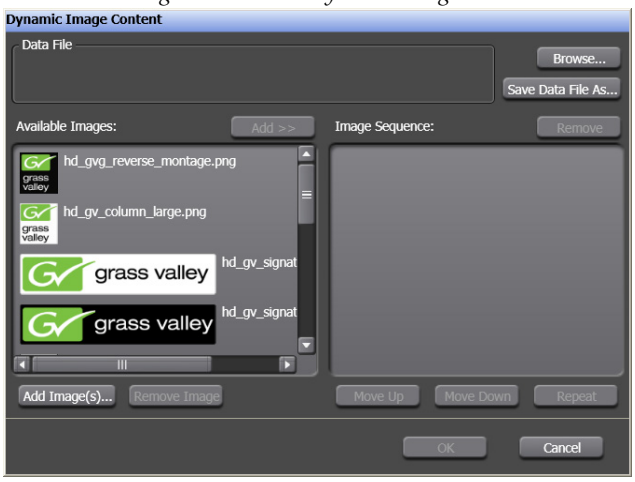
Adding Dynamic Content

Dynamic image content is stored in a .DAT file and is automatically updated and displayed.

Follow these steps to add Dynamic content:

1. Click the **Dynamic Content** button to add the images that will be dynamically displayed. The Dynamic Image Content window will then appear (Figure 106).

Figure 106. Branding Visual Tool - Dynamic Image Content Window



2. Select the images that you want to add from the Available Images column.

3. Click the **Add>>** button. The selected image will then be seen in the Image Sequence column.

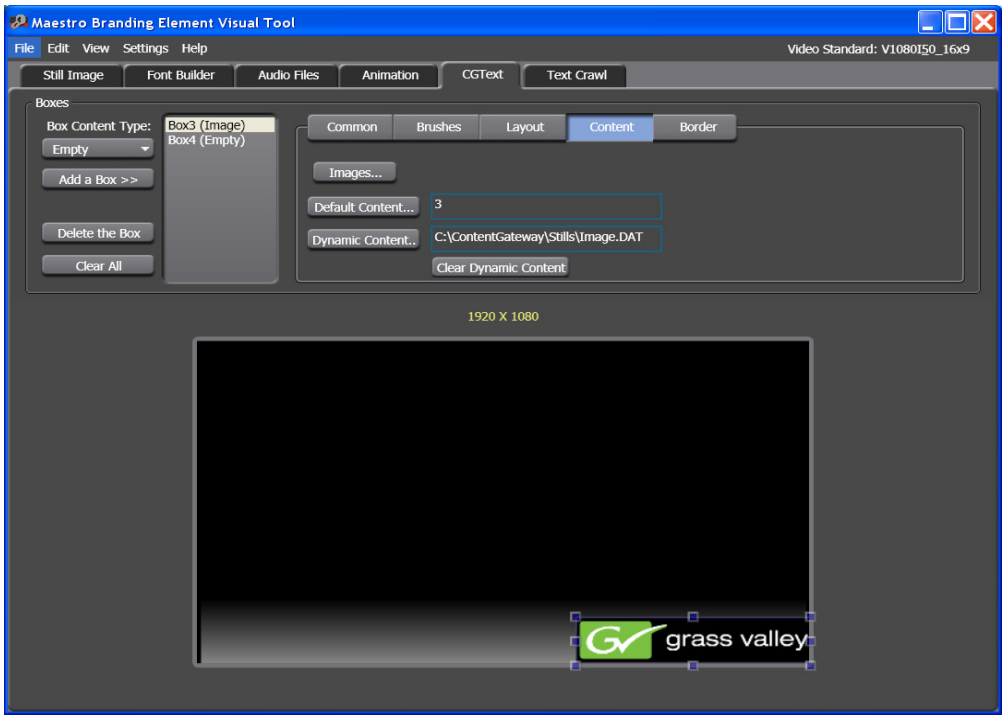
4. Click the **Save Data File As**..button. The Select Data File Name dialog will then open. Enter a name for the DAT file in the *File name* field.

5. Click the **Save** button. Select Data File Name dialog will then close and the Dynamic Image Content window will then be seen.

Note If you want to use an existing DAT file, click the **Browse...** button, and then select the preferred file in the Open dialog.

6. Click the **OK** button. The Dynamic Image Content window will then close and the selected image will be in the Image box (Figure 107).

Figure 107. Visualization Tool - The Dynamic Content Information



The field by the **Dynamic Content** button will display the menu path to the DAT file (C:\ContentGateway\Stills\Image.DAT, is shown in the example above).

Note To remove the dynamic content, click the **Clear Dynamic Content** button.

Adding a Border to the Image Box

Follow these steps to add a border to the Image box:

1. Click the **Border** button. The configuration settings will change to show the size and color options for a border around the box (Figure 108).

Figure 108. Visualization Tool - Border Tab

2. Select the **Uniform border** check box. All the size values will be proportional to the number entered in the *Left* field.

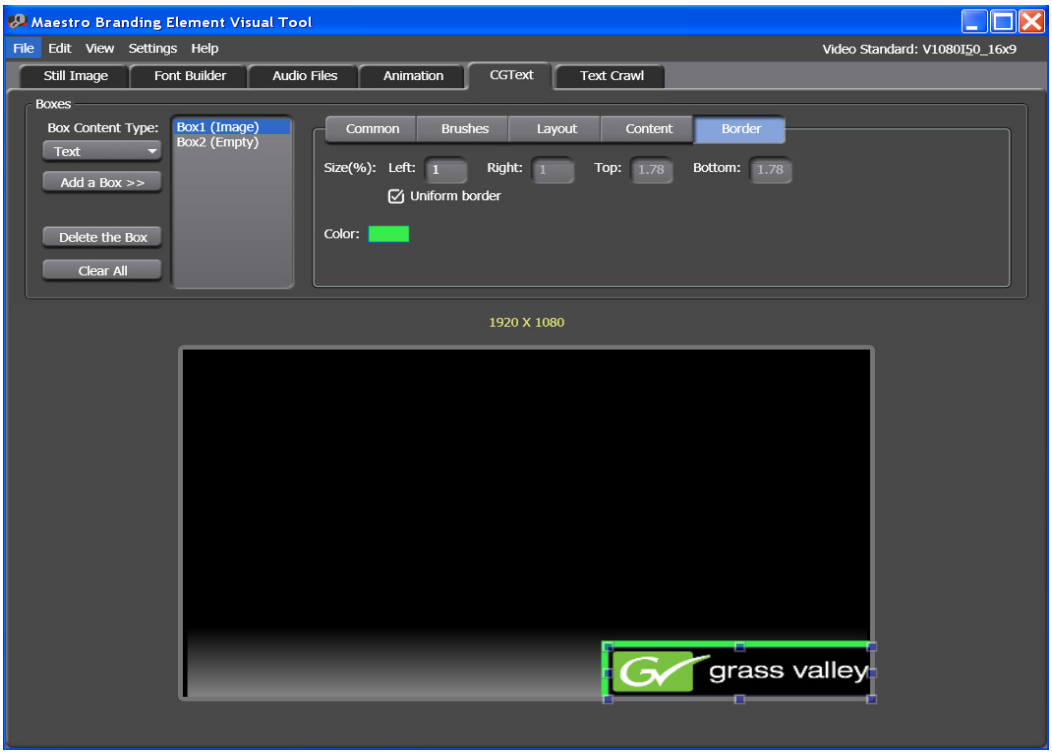
3. Enter a number that will be the size of the border in the *Left* field beside the Size (%): title.

4. Click the color swatch by the text Color:. The color dialog will then open. Select the color by clicking in the *Color* field.

Note If you know the RGB values, you can also change the color by entering the RGB values in the respective fields.

5. Click the **OK** button to close the Color dialog. The Border will then have the color applied.

Figure 109. Visualization Tool - Brushes Tab -Image Box



Text Crawl Tab

A Text Crawl is a single formatted text line that moves horizontally across the display screen. The **Text Crawl** Tab is used to create a Display template. The Text Crawl screen consists of two principal display areas. The Property section in the top upper left and a scalable example of the template display.

The example of the screen display area is correctly scaled to the dimensions of selected video standard. All elements, including font size, are scaled to display the template as it would appear in the respective screen display. This example screen display includes dashed line boundaries that correspond to important screen-display areas. These boundaries are the SAFE

ACTION boundary and the SAFE TITLE boundary. The SAFE ACTION Boundary identifies the area of the screen that will reliably display program action on all display screens, including monitors that are utilizing overscan. The SAFE TITLE boundary identifies the area of the screen that will reliably display text information on all display screens, including monitors utilizing overscan.

The Text crawl and CG text features should be limited to the area inside the SAFE TITLE boundary. The text may be lost or may be seen to move off-screen in a crawl template if a text element is allowed to extend beyond the SAFE TITLE.

Creating a Template File

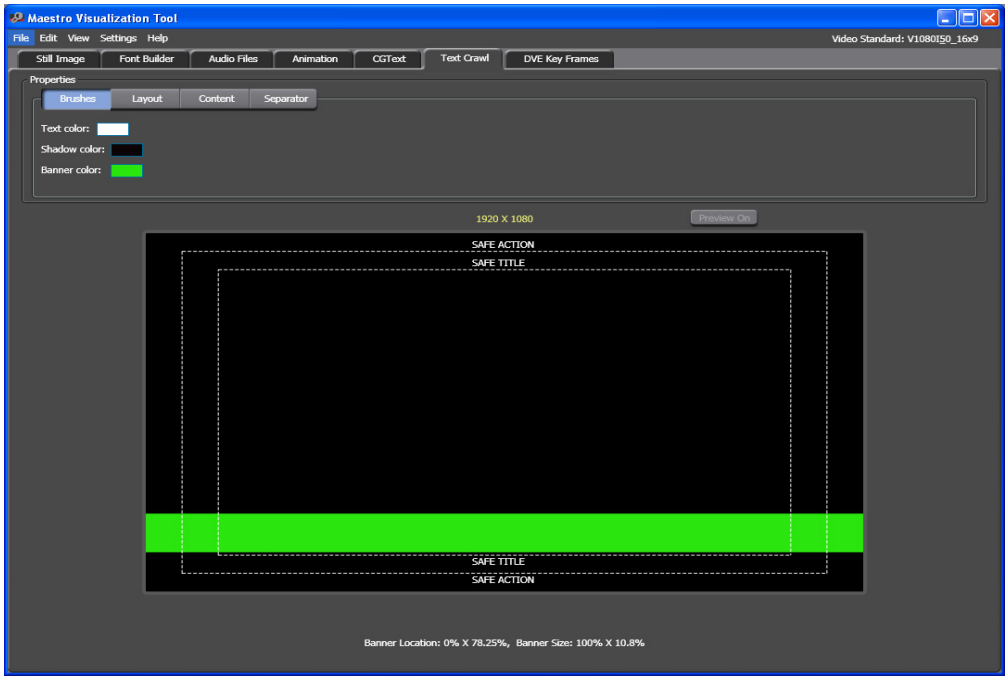
All of the buttons in the Properties section will be covered in this section.

Follow these steps to create a Display template in the Visualization Tool:

1. Click the **Text Crawl** tab in the application interface.

The **Text Crawl** tab interface is shown in Figure 110.

Figure 110. Branding Visual Tool - Text Crawl Tab



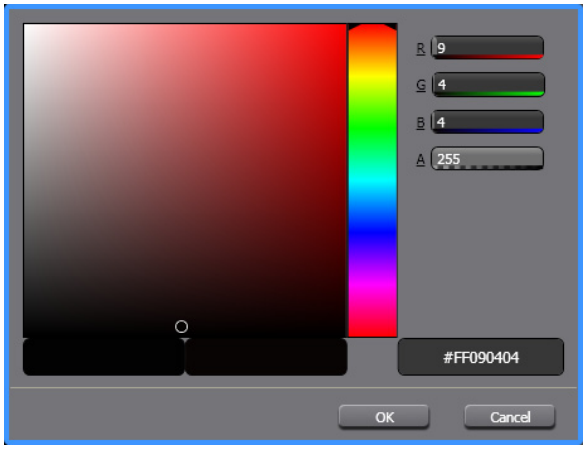
2. Select the preferred settings from the Setting menu (Settings> Video Standard). The Default 4X3 NTSC setting is shown in the example above.

Selecting the Text Color

Follow these steps to select the color of the text:

1. Click the **Brushes** button in the Properties section in the upper left-hand corner of the interface, if it is not already selected. The Properties section will show three color previews.
2. Click the color preview that you want to change. A color selection window will then appear (Figure 111).

Figure 111. Branding Visual Tool - Color Selection tool



3. Select the preferred color by clicking within the color box. If you know the RGB or the hexadecimal values for a color you can enter them in their respective fields.
4. Click the **OK** button.

Repeat these steps for the Text, Shadow, and Banner color as needed.

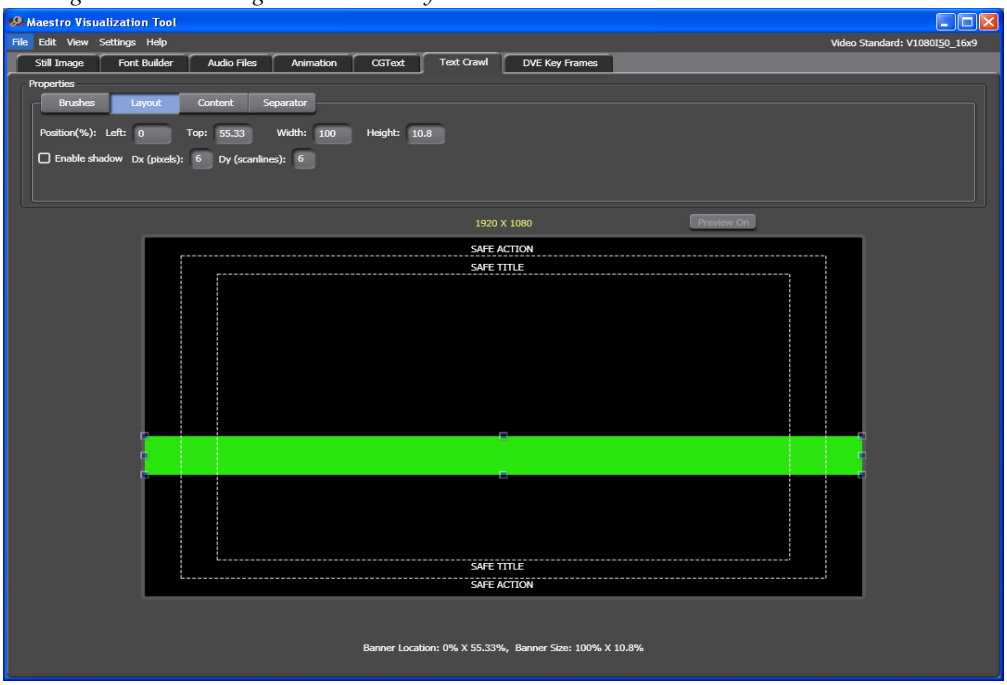
Configuring the Layout Position

Follow these steps to set the Layout position:

1. Click the **Layout** button in the Properties section.

The layout settings are shown in Figure 112.

Figure 112. Branding Visual Tool - Layout Button



Change the Position (%) settings as needed. These setting will change the position of the banner, which is green in the example above (Figure 112).

You can also drag the edges of the banner to adjust its width and height. Click the banner and then place the cursor on a corner of the banner and move the banner to the preferred size and location. The Position and Size parameters display will then be updated to reflect the dragged banner edge.

Note The Text crawl features should be restrained within the SAFE TITLE area.

2. Click the Enable shadow check box if you want to add a shadow to the text.

3. Enter the number of pixels that you want to move the shadow horizontally in the *Dx (pixels)* field.

4. Enter the number of pixels that you want to move the shadow vertically in the *Dy (pixels)* field.

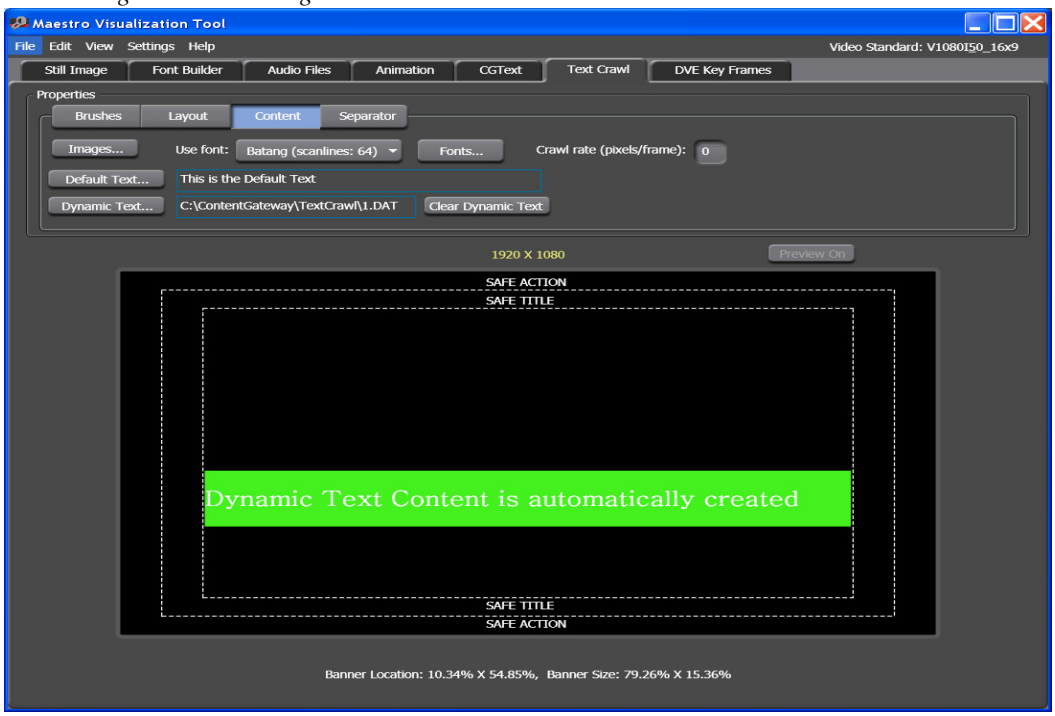
Note Negative numbers cannot be entered in either the Dx (pixels) or the Dy (pixels) field.

Entering the Content

Follow these steps to enter the Text Crawl's content:

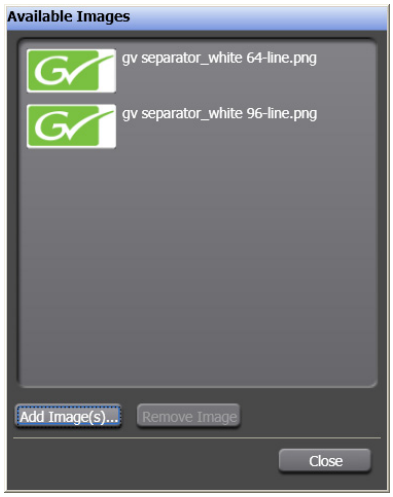
1. Click the **Content** button in the Properties section. The content settings are shown in Figure 113.

Figure 113. Branding Visual Tool - Content Button



2. Click the **Images** button to add images. The Available Images dialog will then appear.

Figure 114. Branding Visual Tool - Example of Images



3. Click the **Add Image(s)** button. The Open dialog will then open.

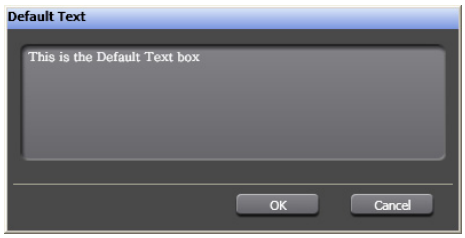
4. Navigate to the preferred file and then click the **Open** button. The image will then appear in the Available Images dialog (Figure 115).

Figure 115. Branding Visual Tool - Available Images with A New Image

5. Click the **Close** button
6. Select the preferred font from the Use Font drop-down menu.
7. Enter the movement per video frame in the *Crawl Rate (pixels/frame)* field.
8. Click the **Default Text** button to add the text that will be displayed. The Default Text dialog will then appear (Figure 116).

Note Default Text will be displayed if the Dynamic Text content has not been defined or is not available.

Figure 116. Branding Visual Tool - Default Text



9. Enter the text that you want displayed in the top section and then click the **OK** button.

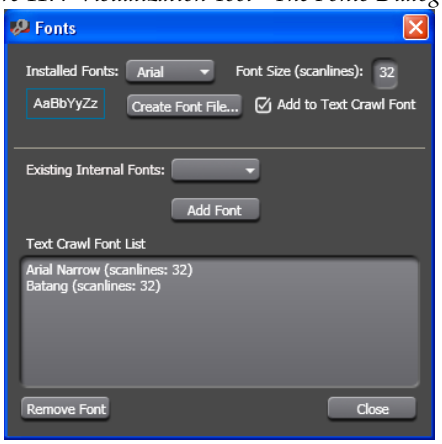
Adding a Font to the Text Crawl List

The Fonts dialog allows you to change the current font to a new font with a specific name and size. The font is selected from a drop-down list of the installed True-Type fonts.

Follow these steps to add a font to the Text Crawl list:

1. Click the **Fonts** button. The Fonts dialog will then appear (Figure 117).

Figure 117. Visualization Tool - The Fonts Dialog



2. Click the Installed Fonts drop-down list. Arial has been selected in the Figure 117 above.

3. Adjust the font to the preferred size by entering the size in the *Font size (Scanlines)* field.

4. Click the **Create Font File** button. Maestro's font tool will then begin to process the font. The Save Font dialog will then appear (Figure 118).

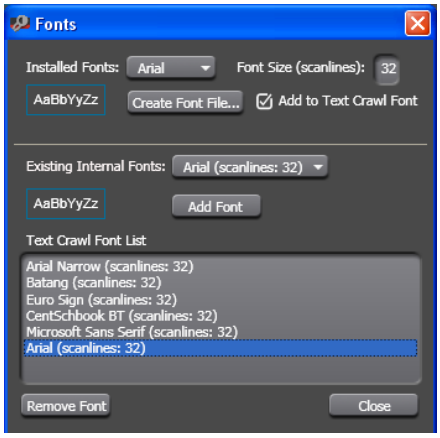
Figure 118. Visualization Tool - The Save Font Dialog

5. Click the **OK** button to close the dialog.

6. Select the new font from the Existing Internal Fonts drop-down list in the lower section of the dialog.

7. Click the **Add Font** button. The font will then appear in the Text Crawl Font List (Figure 119).

Figure 119. Visualization Tool - The Fonts Dialog Font Added



8. Click the **Close** button.

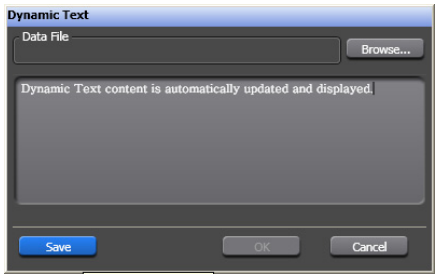
Adding Dynamic Text

Dynamic Text content is automatically updated and displayed.

Follow these steps to add Dynamic text:

1. Click the **Dynamic Text** button. The Dynamic Text dialog will then appear (Figure 120).

Figure 120. Visualization Tool - The Dynamic Text Dialog



2. Enter the text that will be used in the Dynamic text file.
3. Click the **Save** button. The Select Data File Name dialog will then appear.
4. Enter a name that the file will be called in the *File name* field and then click the **Save** button. The Dynamic Text dialog will then reappear with the **OK** button active.

Note Dynamic files are named with the .dat file extension. For example, dynamic text.dat.

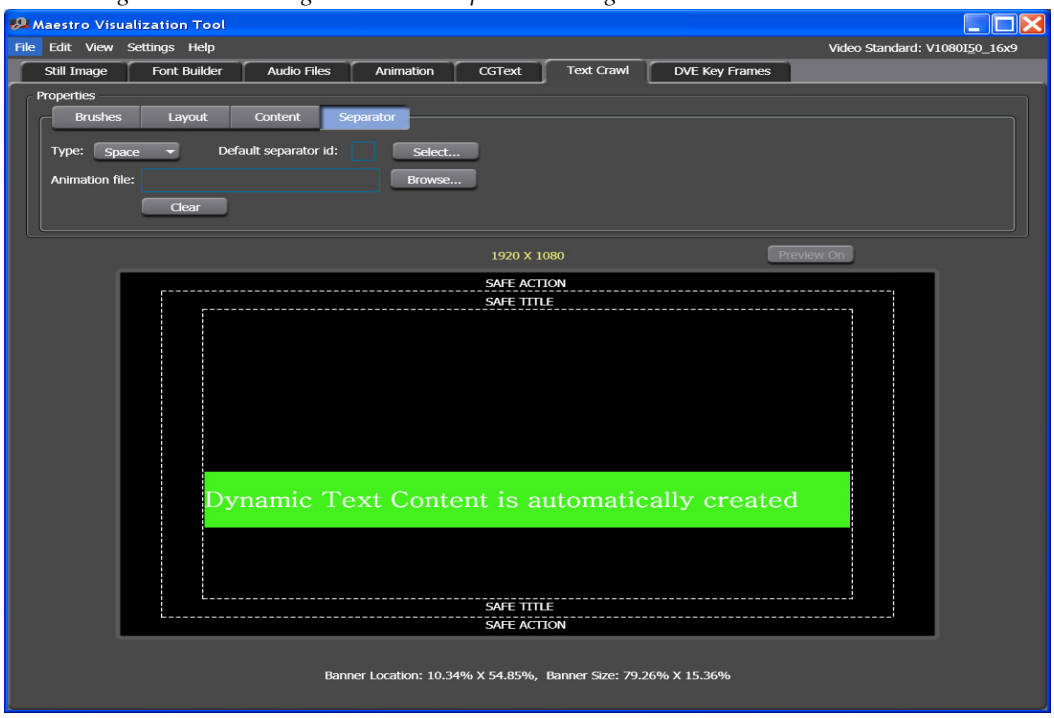
5. Click the **OK** button. The location of the Dynamic text file will then appear in the field next to the **Dynamic Text** button in the Properties section.

Selecting a Separator

Follow these steps to select a separator:

1. Click the **Separator** button in the Properties section in the upper left-hand corner of the interface. The Separator settings are shown in Figure 121.

Figure 121. Branding Visual Tool - Separator Settings



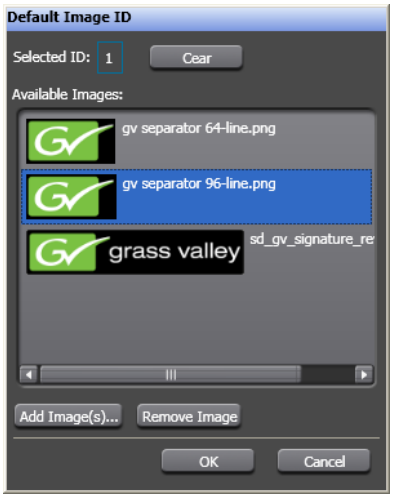
2. Select the type of separator you wish to use from the Type drop-down menu. The options are space, still, or animation; Space is the default option.

Selecting a Still Image

Follow these steps to select a still image:

1. Select the Still option from the Type drop-down menu.
2. Click the **Select** button. The Default Image ID dialog will then appear.

Figure 122. Branding Visual Tool - Default Images with a New Image

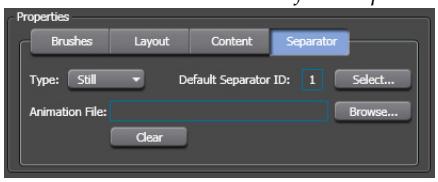


3. Click the preferred image in the Available Images section. The image ID will then appear in the *Selected ID* field (Figure 122).

   Images can be added by clicking the **Add Image(s)** button. Clicking the **Remove Image** button will delete the file.

4. Click the **OK** button. The image ID will then appear in the *Default Separator ID* field (Figure 123).

Figure 123. Visualization Tool - The Default Separator ID Field



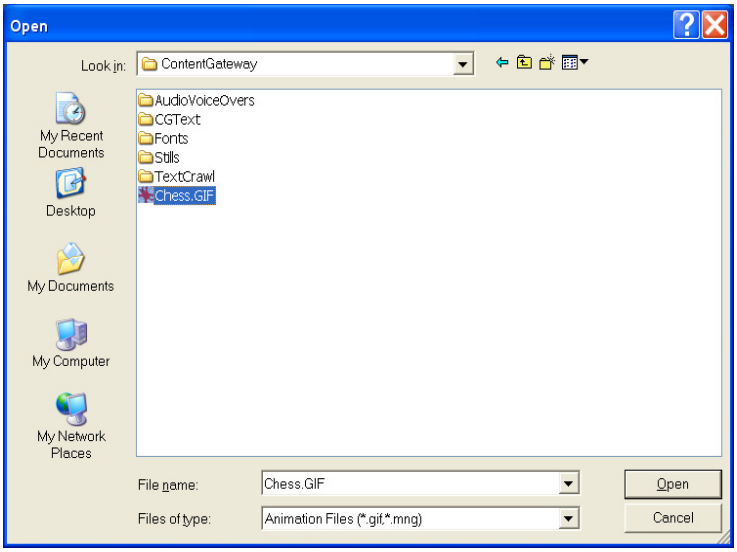
Selecting an Animation File

Follow these steps to select an animation file:

1. Select the Animation option from the Type drop-down menu.

2. Click the **Browse** button. The Open dialog will then appear (Figure 124).

Figure 124. Animation File Open Dialog

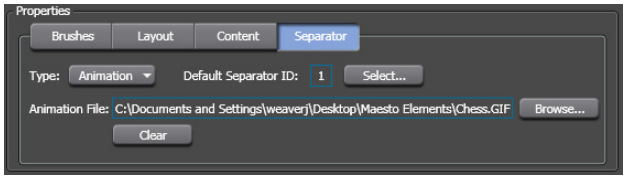


3. Browse to the folder location that contains the file that you wish to open.

4. Select the preferred file from within the folder and then click the **Open** button.

5. The selected animation file is then opened and the file location is displayed in the *Animation File* field (Figure 125).

Figure 125. Visualization Tool - The Animation File Field



Clicking the **Clear** button will remove the information from the field.

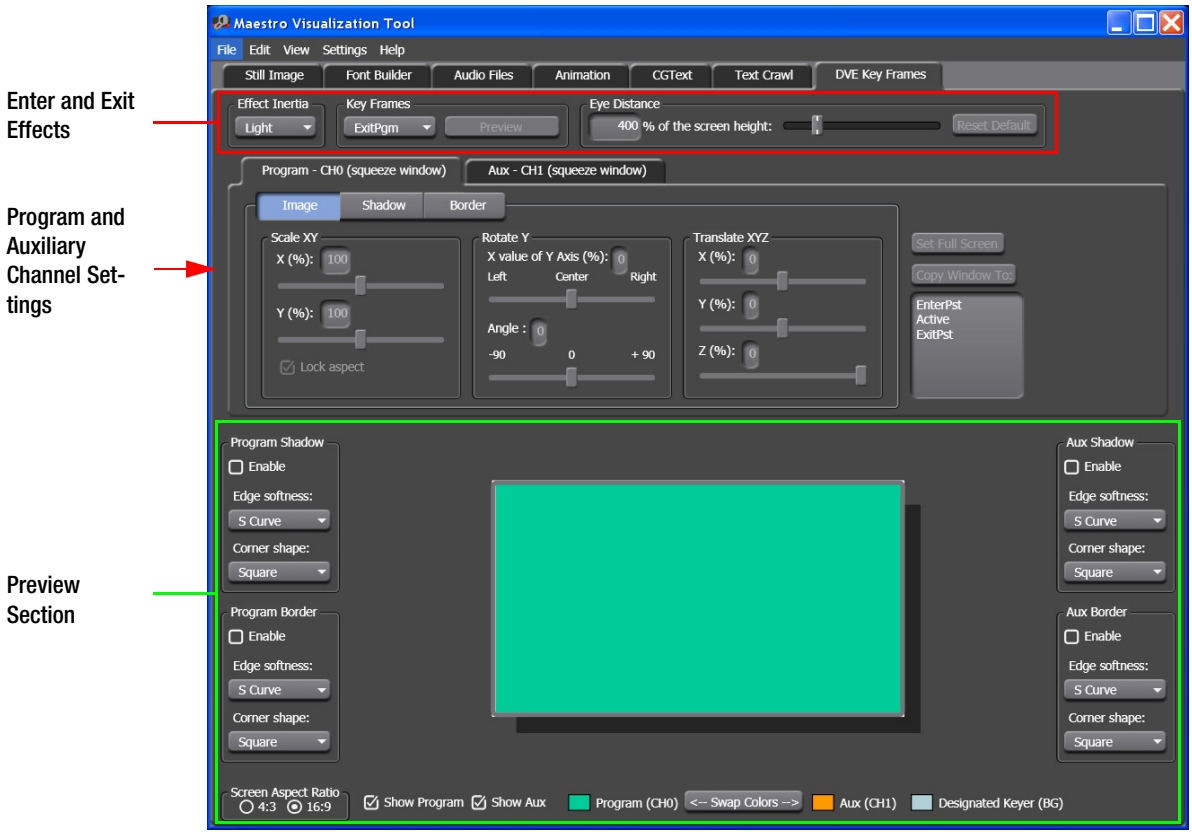
DVE Key Frames Tab

The DVE option allows one background bus (audio and video) and its selected upstream keys to be interpolated with another background bus. The **DVE Key Frames** tab provides the tools to control, edit and preview the different effects, transitions and DVE keyframes. This tab is where you can create an image border or drop-shadow, which allows a visual separation of the DVE effect elements and the revealed background.

Modifying a DVE Key Frame

This dialog will be described in three sections, the Enter and Exit effects, the Program and Auxiliary channel settings, and the Preview section. These sections are identified below in Figure 126.

Figure 126. Visualization Tool - DVE Key Frames Tab



Enter and Exit Effects

Follow these steps to modify the Enter and Exit effects:

1. Click the Effect Inertia drop-down list and select an option for the speed of the Key frames transition. The options are: Off, Light, Medium, and Heavy.

2. Click the Key Frames drop-down list and select one of the seven transitions. The choices that are available are listed below with a description of how the keyframe will change:

   - **EnterPgm**: When this keyframe is selected:
     - The Pgm channel will change to the Program effect (or squeeze) window.
     - The Aux channel will change to the Aux effect (or squeeze) window. The roles will not change.
     - The **Preview** button will change to show Preview EnterPgm.
   - **EnterPst**: When this keyframe is selected:
     - The Pst channel will change to the Program effect window.
     - The Aux channel will change to the Aux effect window.
     - The Pst channel will swap roles with the Pgm channel.
     - The **Preview** button will change to show Preview EnterPst.
   - **EnterAux**: When this keyframe is selected:
     - The Aux channel will change to the Program effect window.
     - The Pgm channel will change to the Aux effect window.
     - The Aux channel will swap roles with the Pgm channel.
     - The **Preview** button will change to show Preview EnterAux.
   - **Active**: When this keyframe is selected:
     - Active is the transition between an Enter and Exit keyframe.

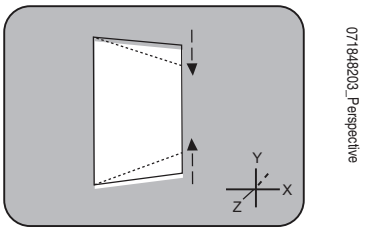
Note If Active has been selected the **Preview** button will change to a drop-down list. The list will display all of the Exit options.

   - **ExitPgm**: When this keyframe is selected:
     - The Pgm channel will end up full screen.
     - The Aux channel will move to the background.
     - The roles will not change.
   - **ExitPst**: When this keyframe is selected:
     - The Pst channel will end up full screen.
     - The Pgm channel will swap roles with the Pst channel.
   - **ExitAux**: When this keyframe is selected:
     - The Aux channel will end up full screen.
     - The Pgm channel will swap roles with the Aux channel.

3. Click the **Preview** button to see a representation of how the transition will occur. The transition will be displayed in the Preview section.

4. Select the distance from the eye to the object on the screen by moving the **% of the screen height** slider to the preferred distance. This setting adjusts the Perspective projection or the angle that the eye will see. When the eye is close, the greater the perspective and the farther away, the less the perspective. Eye position is the center of projection.

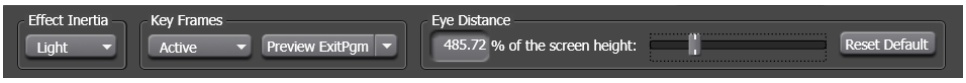
Figure 127. The Perspective



5. Click the **Reset Default** button to restore the eye distance to 400, which is the default setting (Figure 128).

Note If the object is flat on the screen (0 in the Z(%) setting of the Translate XYZ section), the changes made by eye distance will be insignificant.

Figure 128. The Enter and Exit Effects Section with Increased Eye Distance



Program and Auxiliary Channel Settings

The Program or Aux window settings change how either of these windows is displayed. The settings that are on the **Program - Ch0 (squeeze window)** tab are the same for the **Aux-Ch1 (squeeze window)** tab.

Note For simplicity purposes the information in the steps below will be about the **Aux-CH1** tab. The AUX (CH1) window will be identified by the gold box.

There are three buttons on each tab, **Image**, **Shadow** and **Border**. The process for all of these buttons will be described below.

Image Button

The settings found under this button affect the preview images size, rotation, and translation.

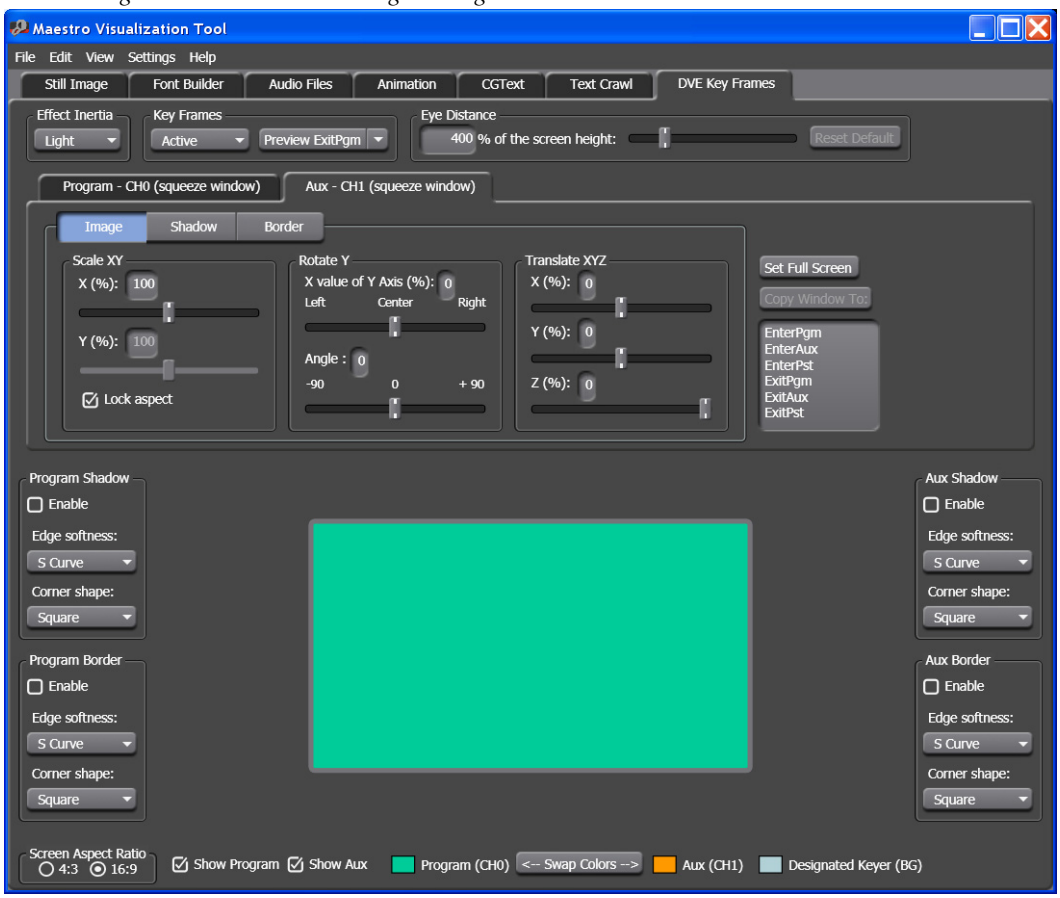
Copying the Window Settings

These settings can be copied to a specific keyframe by selecting the key-frame and then clicking the **Copy window to:** button. The list of keyframes and the **Copy window to:** button are located to the right of the image settings.

Resetting the Window Settings

Clicking the **Set to Full Screen** button will remove any changes and set the settings to default.

Figure 129. AUX- CH1- Image Settings



Follow these steps to modify the scale, rotation and translation:

Scale XY

This setting enlarges or reduces the picture area while it remains in the same plane in 3-D space.

1. Adjust the slider for the X (%) setting under the Scale XY section. If the Lock aspect check box is selected, the Y (%) slider will be grayed out and any changes made to the X(%) slider will change the Y (%) slider.

   In the example in Figure 131, the scale has been reduced to 50%.

Rotate Y

The Picture rotation about the horizontal (X) axis and the vertical (Y) reference axis.

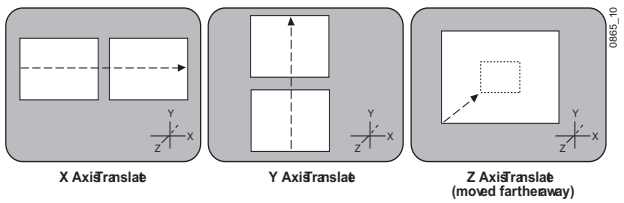
2. Adjust the slider for the X value of y Axis (%) setting under the Rotate Y section. In the example in Figure 131, the Aux (CH1) has been rotated 25% to the right.

3. Adjust the slider for the Angle value under the Rotate Y section. In the example in Figure 131, the angle has been adjusted to 45 degrees.

Translate XYZ

Translation involves picture movement along the X, Y, and Z axis. The picture is relocated to a different place but does not change in actual size or shape (Figure 130).

Figure 130. Examples of Translation Settings



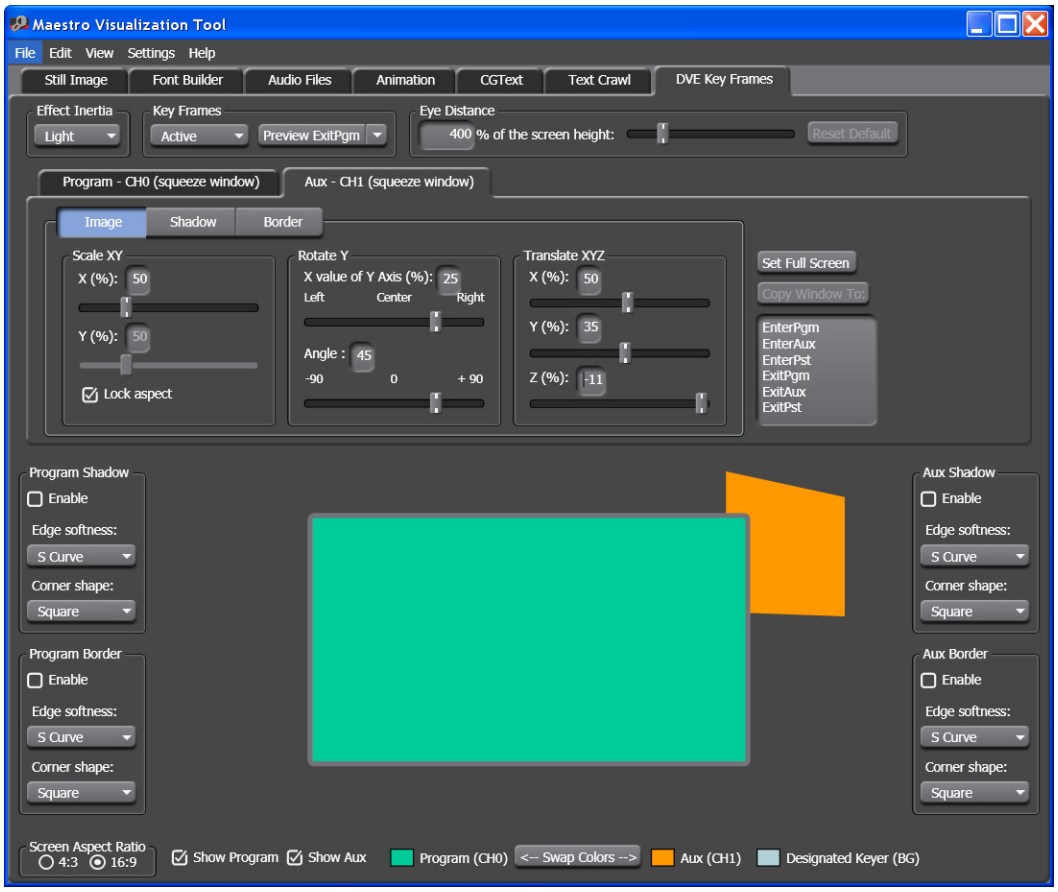
1. Adjust the window to the left or right by adjusting the X (%) slider under the Translate XYZ section either to the left or right. In the example in Figure 131, the X (%) setting has been adjusted to 50 percent.

2. Adjust the window up or down by adjusting the Y (%) slider either left or right. In the example shown below in Figure 131, the Y (%) setting has been adjusted to 35 percent.

3. Adjust the distance of the window from the screen by adjusting the Z (%) slider either left or right. In the example in Figure 131, the Z (%) setting has been adjusted to -11 percent.

The changes to the AUX window has been applied. The AUX (CH1) window or the gold box, has been off set to the upper right.

Figure 131. AUX- CH1- Image Settings -Applied

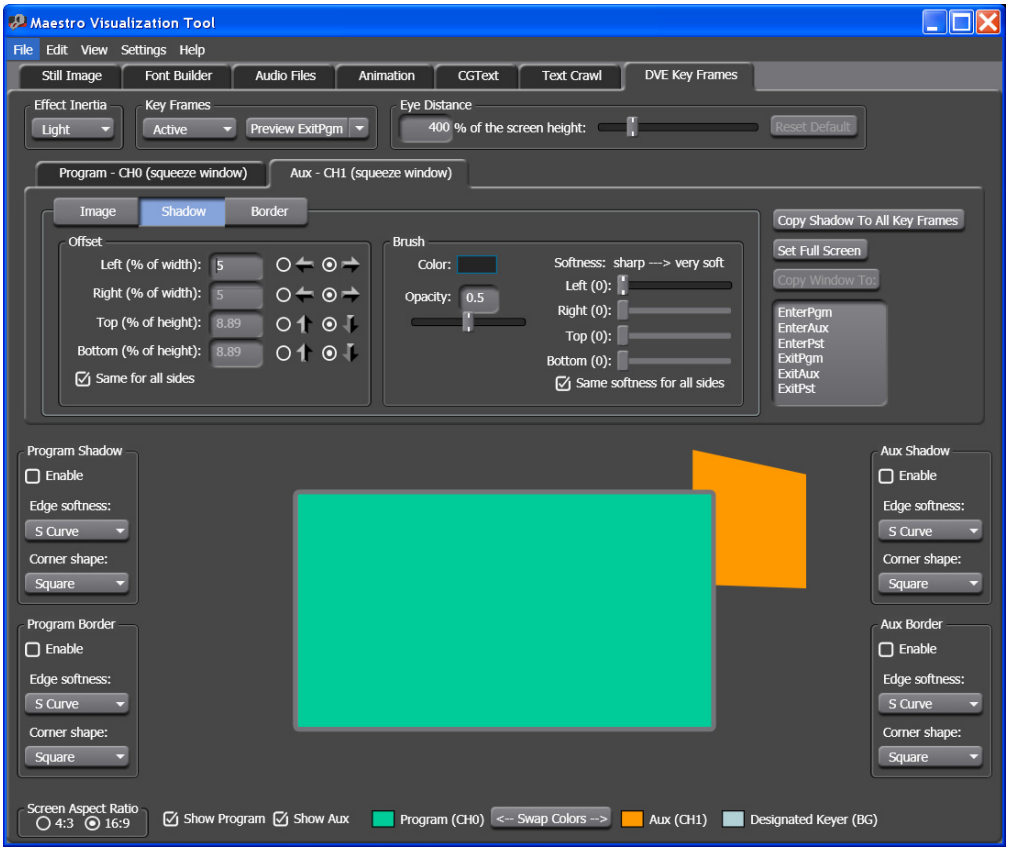


Shadow Button

The settings found under this button affect the offset, color, opacity and softness of the shadow. Clicking the **Copy Shadow To All Key Frames** button will apply all changes to all Key Frames.

The Keyframe list, **Copy Window To**: button and the **Set Full Screen** button are explained previously in *Image Button* on page 198.

Figure 132. AUX- CH1- Shadow Settings



Follow these steps to adjust the offset and color of the shadow:

Offset

1. Click the **Shadow** button and then click the Enable check box under the Aux Shadow box on the right side of the Preview window.

2. Enter the preferred width of the offset for the shadow in the Left (% of width) text box. If the Same for all sides check box is selected, the Right (% of width), Top (% of height), and Bottom (% of height) text boxes will be grayed out and any changes made to the Left (% of width) text box will be applied to the other offset settings.

Brush

3. Select the appropriate radio button for what side of each side the shadow will be applied either left or right, top or bottom for each side of the preview window.

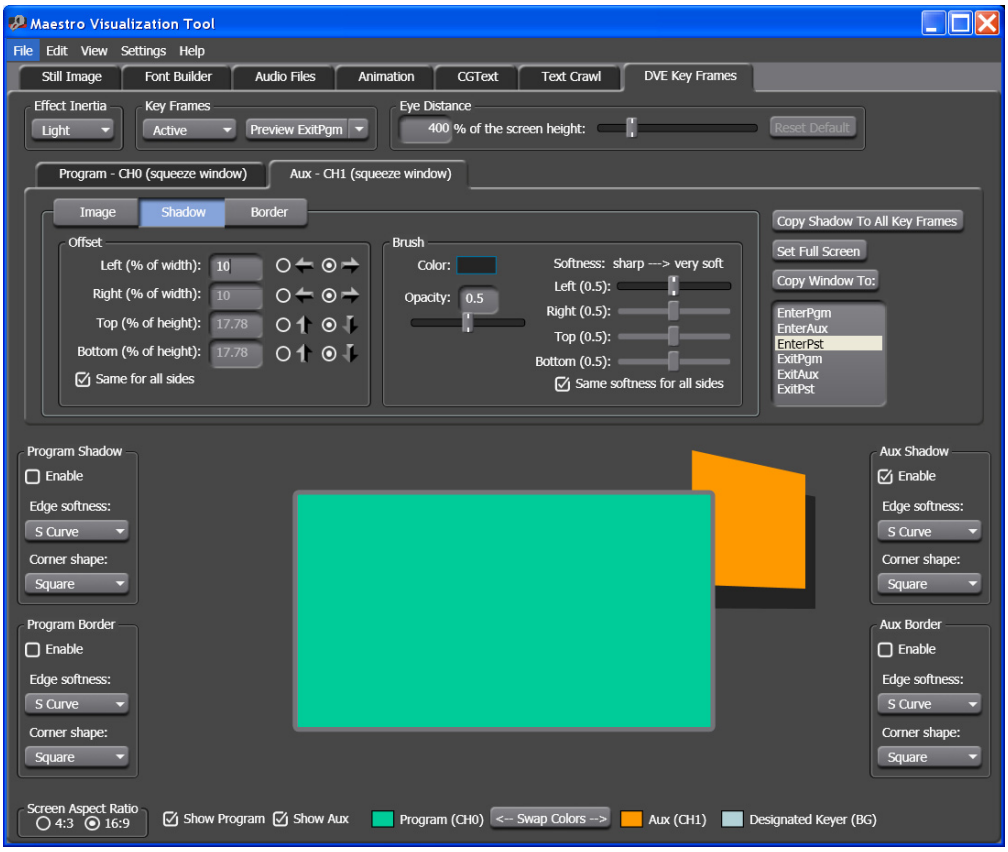
4. Click the Color sample in the Brush box. The Color dialog will then appear (Figure 133). Select the preferred color and then click the **OK** button to apply your selection. In the example in Figure 133, the selected color is black.

Figure 133. AUX- CH1- Shadow Color

5. Adjust the slider for the opacity of the shadow. In the example in Figure 132, the angle has been adjusted to .5 opacity.

6. Adjust the slider for the Softness of the shadow from sharp to very soft. In the example in Figure 132, the softness has been adjusted to .5. If the Same softness for all sides check box is selected, the Right, Top, and Bottom sliders will be grayed out and any changes made to the Left slider will be applied to the other softness settings.

Figure 134. AUX- CH1- Shadow Settings Applied

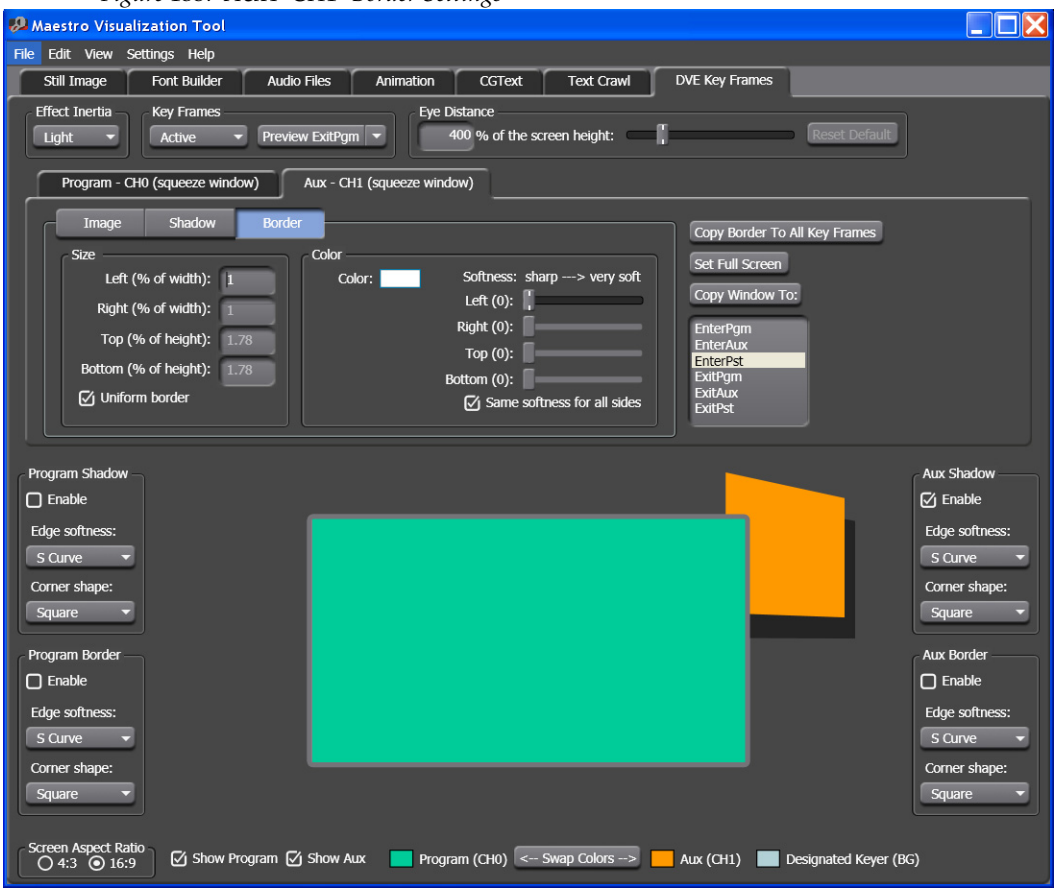


Border Button

The settings found under this button affect the size, color, and Softness of the border. Clicking the **Copy Border To All Key Frames** button will apply all changes to all Key Frames.

The Keyframe list, **Copy Window To**: button and the **Set Full Screen** button are explained previously in *Image Button* on page 198.

Figure 135. AUX- CH1- Border Settings



Follow these steps to adjust the size, color, and Softness of the border:

Size

1. Click the **Border** button and then click the Enable check box under the Aux Border box on the right side of the Preview window.

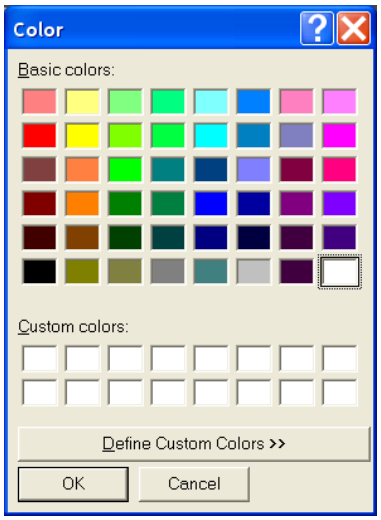
2. Enter the preferred size of the border in the Left (% of width) text box. If the **Same for all sides** check box is selected, the Right (% of width), Top (% of height), and Bottom (% of height) text boxes will be grayed out and any changes made to the Left (% of width) text box will be applied to the other border settings.

3. Select the appropriate radio button for what side of each side the border will be applied either left or right, top or bottom for each side of the preview window.

Color

4. Click the Color sample in the Color box. The Color dialog will then appear (Figure 136). Select the preferred color and then click the **OK** button to apply your selection. In the example below, the selected color is white.

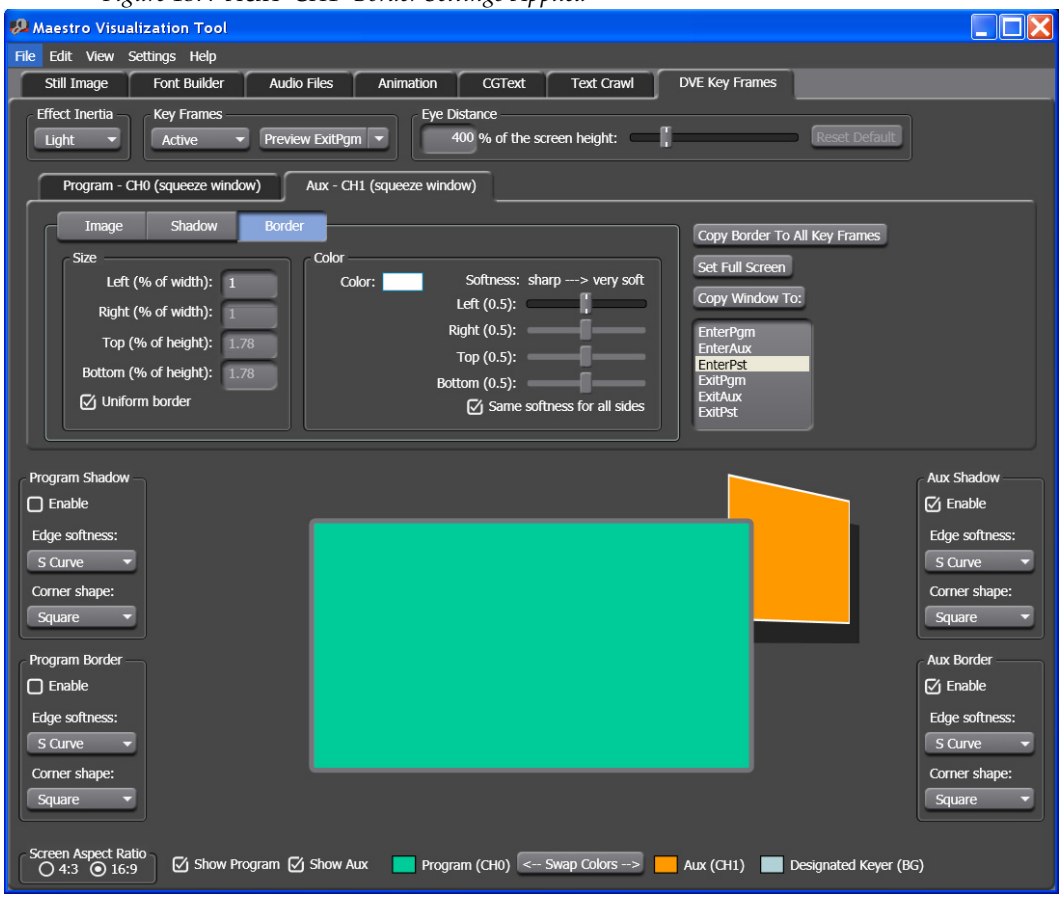
Figure 136. AUX- CH1- Border Color



5. Adjust the slider for the Softness of the border from sharp to very soft. In the example in Figure 137, the softness has been adjusted to .5. If the **Same softness for all sides** check box is selected, the Right, Top, and Bottom sliders will be grayed out and any changes made to the Left slider will be applied to the other softness settings.

   The border is then applied.

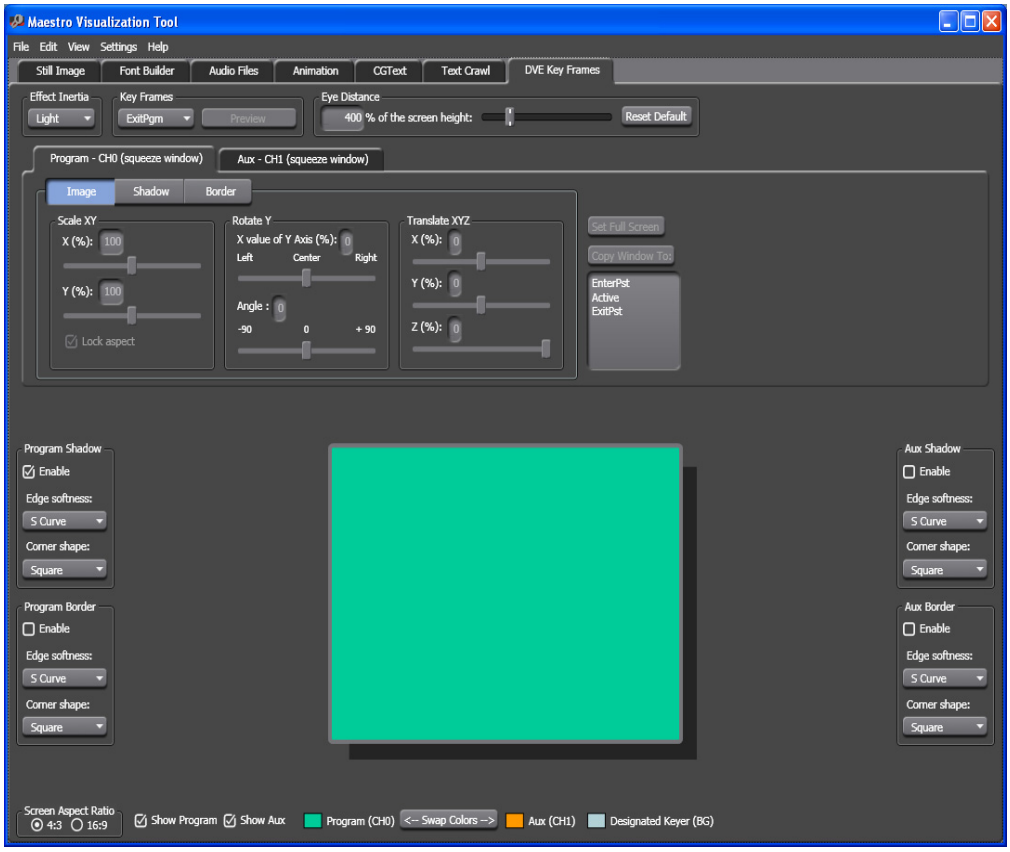
Figure 137. AUX- CH1- Border Settings Applied



Preview Section

The Preview section provides a graphical representation of how the edits or changes to the keyframes will appear. You can change the shadow and border settings for both the Program and Aux windows; as well as hide or view these windows. The colors that identify the Program and Aux windows can be switched. Aspect ratio can be changed between standard (4:3) and wide-screen (16:9).

Figure 138. AUX- CH1- Preview Settings



Program and Aux Settings

The Program and Aux window's shadows and borders can be adjusted or turned off.

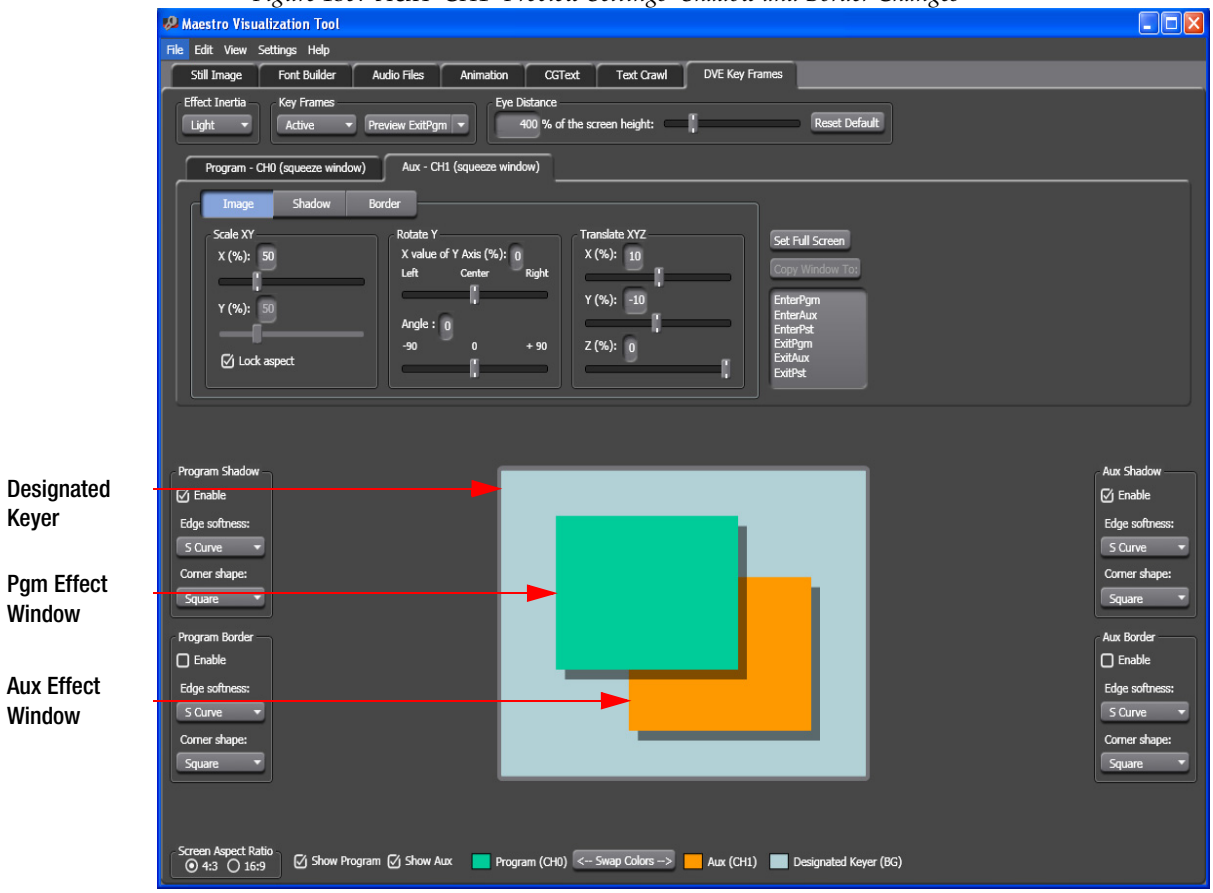
Follow these steps to adjust the shadow and borders:

1. Click the **Enable** check box under the Program Shadow box on the left side of the Preview window.
2. Select the preferred softness of the shadows edge from the drop-down list. The options are S curve and Linear.
3. Select the Corner shape from the Corner shape drop-down list. The options are square and round.
4. Click the Enable check box under the Program Border box on the left side of the Preview window.
5. Select the preferred softness for the edge of the border from the drop-down list. The options are S curve and Linear.

6. Select the Corner shape from the Corner shape drop-down list. The options are square and round. The changes are then applied (Figure 139).

Note The Keyframe EnterPgm preview was used to show the Shadow settings for both the Program and Aux window.

Figure 139. AUX- CH1- Preview Settings- Shadow and Border Changes



The above steps are for the Program window; the Aux steps are the same. The steps for the Aux window are not described here.

Selecting the Screen Aspect Ratio

Follow these steps to adjust the screen's aspect ratio:

1. Select the preferred ratio's radio button.
2. Select 4:3 for the standard aspect ratio.
3. Select 16:9 for the wide-screen aspect ratio.

Changing the Program and Aux View

Follow these steps to change the Program and Aux views:

1. Remove the check from the **Show Program** check box to hide the Program's window. Selecting, that is placing a check in the check box, the **Show Program** check box will reveal the Program's window.

2. Remove the check from the **Show Aux** check box to hide the Aux's window. Selecting, that is placing a check in the check box, the **Show Aux** check box will reveal the Aux's window.

3. Click the **<--Swap Colors-->** button to change the colors for the windows. The default colors are Program (green) and Aux (gold). See Figure 139 for an example.

Section 7

DVE Option Configuration

Dual Channel DVE (2.0 version and later) is the latest version of DVE. Dual Channel DVE is a powerful option that offers more transitions and options. Any previous version (1.7.0 and earlier) is no longer supported.

Software Requirements

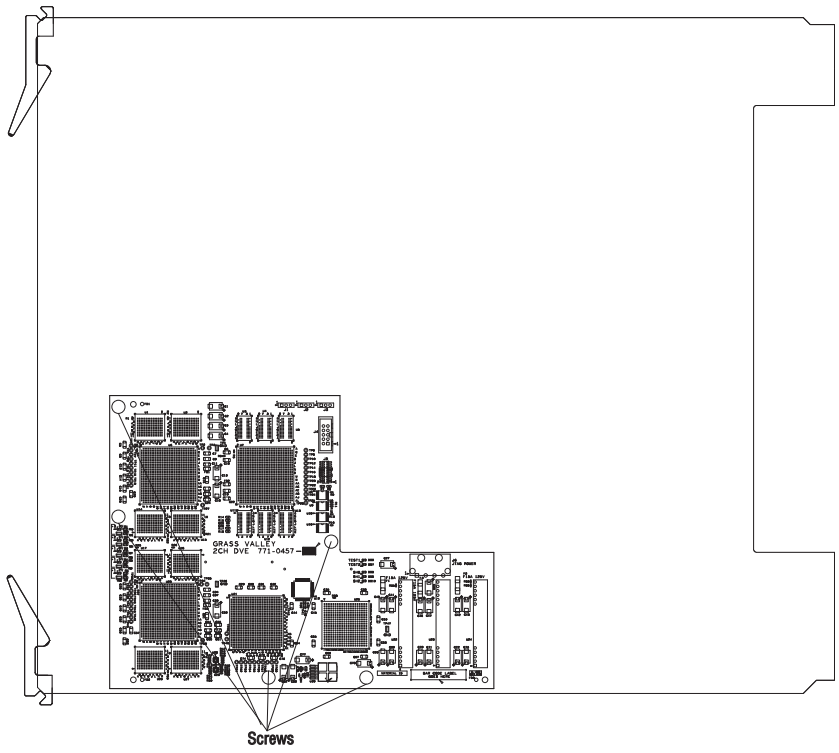
The Dual Channel DVE option requires Maestro release 2.0 or later.

Hardware Requirements

The DVE hardware consists of a mezzanine board that mounts on the main processor board (see Figure 140), and, in some cases may require an additional AES-to-MADI converter to fully utilize Maestro audio capabilities.

Note If the optional DVE mezzanine board is not installed, DVE effects are not available in Maestro. An optional DVE mezzanine board must be installed on each channel (Maestro processor) on which DVE is preferred.

Figure 140. Top Side of Maestro Processor Board, Showing Location of DVE module



The DVE option requires three background video sources (BGA, BGB, and BGC).

The DVE option also requires at least one of the three background audio sources:

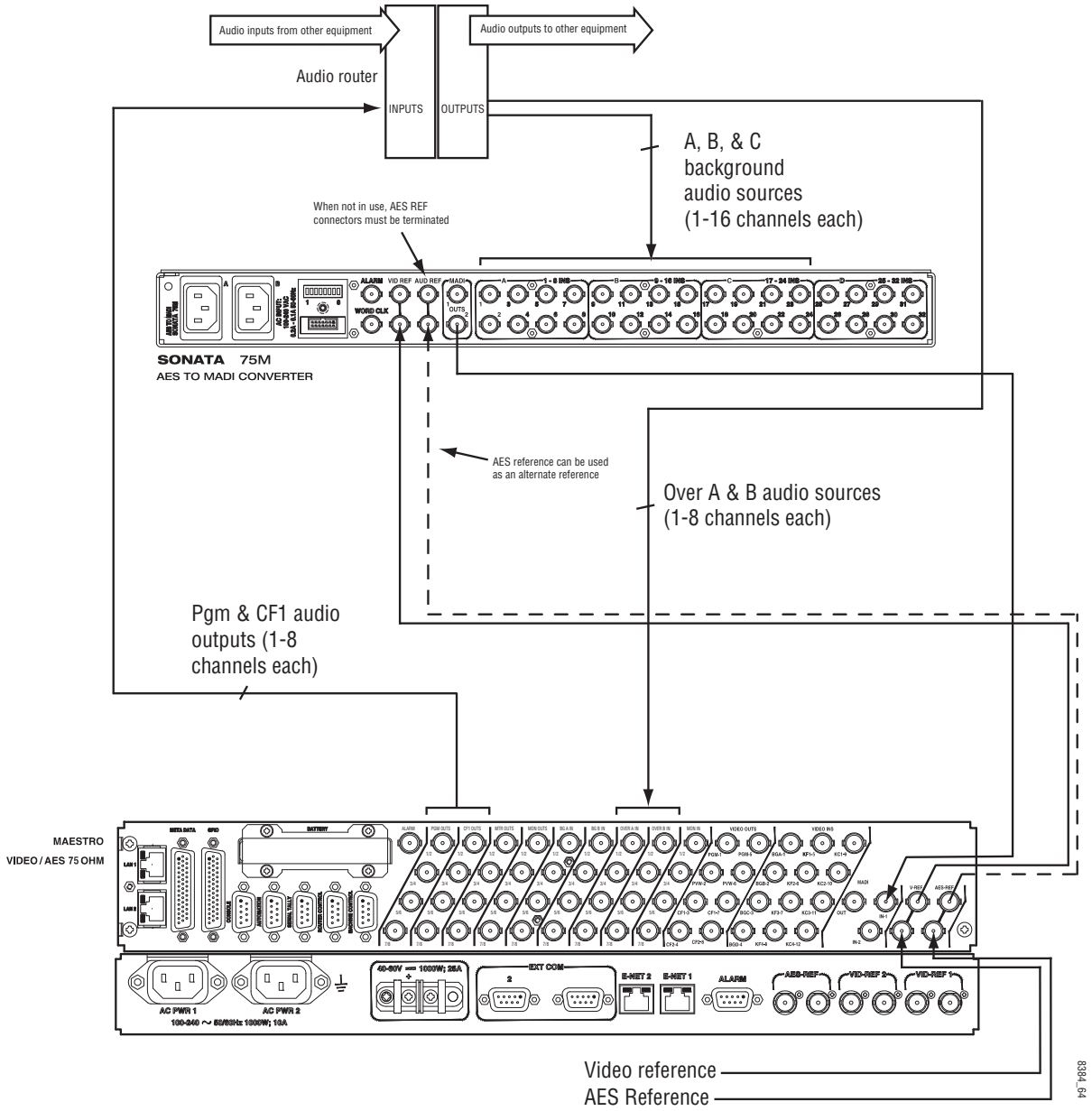
- If the Maestro processor will use embedded audio, no additional hardware is required for DVE operation.
- If the system includes a Grass Valley Apex audio router, no additional hardware is required for DVE operation since Apex includes AES to MADI conversion as a standard feature.
- If Maestro will use AES audio inputs and the Audio router is not an Apex, an optional 1 RU AES to MADI Converter unit must be used to provide the third background audio source. The planner should specify "SON-AU2MADI" (Sonata AES 75 ohm unbalanced to MADI) or "SON-AB2MADI" (Sonata AES 110 ohm balanced to MADI) units. When these Sonata converters are installed, the corresponding AES inputs on the Maestro rear panel are not used and audio for all background video sources (Bkgd A, Bkgd B, Bkgd C and Bkgd D) are wired from the router to the Sonata converter.

Note If needed, at least one Sonata AES-to-MADI converter is required for each Maestro channel processor on which the DVE mezzanine is installed. An additional Sonata converter may be needed for each Maestro channel that requires routed audio over sources. Direct connect audio over sources do not require a Sonata converter. See Figure 141.

For DVE operating instructions, please refer to the *Maestro User Manual,* 0718482xx

For Sonata installation instructions, please refer to publication 0718609xx, *Sonata Series Planning and Installation Manual.*

Figure 141. Sonata-to-Maestro Application Showing Minimum Audio Inputs Required for DVE Operation



DVE Software Configuration

For configuration information see the Dual Channel DVE heading of the Configuration section of the Installation manual (Part # 071869801).

Installations with Apex Audio Router

The Apex audio router provides a MADI output for each output block of 64 channels. One of these output blocks is connected via MADI cable to the Maestro MADI 1 input connector. When configuring the Apex (e.g., using the Jupiter control system), this block must be configured in the following order:

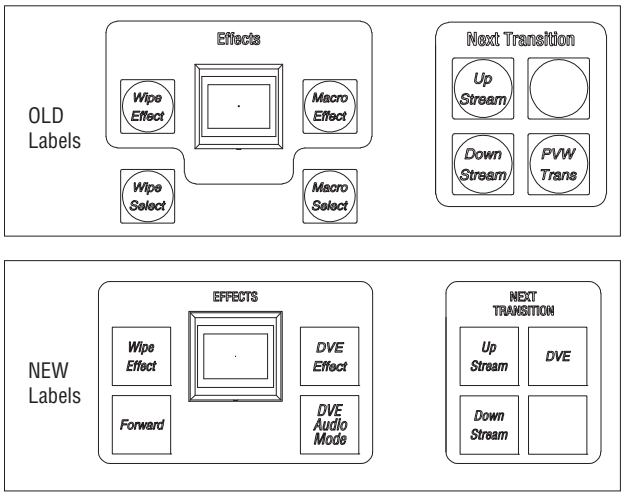
- First 16 outputs (e.g., outputs 1-16) - audio Background A signals for Maestro.
- Second 16 outputs (e.g., outputs 17-32) - audio Background B signals for Maestro.
- Third 16 outputs (e.g., outputs 33-48) - audio Background C signals for Maestro.
- (Future use) - Fourth 16 outputs (e.g., outputs 49-64) - audio Background D signals for Maestro.

Although the present Maestro DVE does not require Background D signals, Grass Valley recommends that the corresponding set of 16 Apex outputs be reserved for future DVE use.

DVE Control Panel Buttons

If you are updating from a previous version of Maestro (*For all versions prior to the 2.0 version of Maestro*), the buttons that are used to operate the DVE option should be updated with the new labels that are shown in Figure 142.

Figure 142. Maestro Primary DVE Controls



These labels are included with the Maestro Lens Chips (button labels) sheet, revision B1, part # 335828100B1. For more information about button label updates, refer to the Maestro v1.3 Release Notes, part # 071850603.

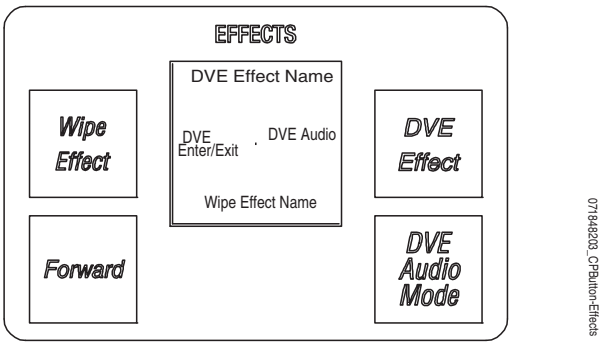
Button Description

Effects LCD Button

There are three lines on the **Effects LCD** button (Figure 143):

- The first line contains the name of the DVE effect that will be entered if a DVE effect is not active. Otherwise it is the name of one of the available active DVE effects.
- The second line contains two fields. The left field contains the name of the entry or exit mode. The right field contains the audio mode being presented on the preset audio.
- The third line contains the name of the current wipe effect.

Figure 143. Control Panel Effects Button

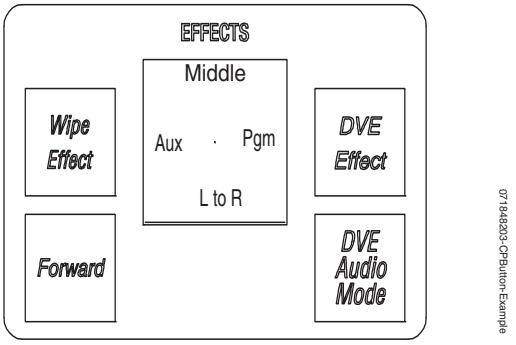


Pressing the **LCD** button disables both the Wipes and DVE effects for the next TAKE. Wipes and DVE effects must be re-enabled by pressing either the **Wipe Effect** button or the **DVE Effect** button.

Example

The following figure (Figure 144) shows what the button would look like for the EnterAux Keyframe.

Figure 144. Control Panel Effects Button-Example



DVE Effect

The **DVE Effect** button is used to cycle through the configured DVE effects if a DVE effect is not active. If a DVE Effect is active, the button cycles through the available modes for the currently active DVE effect.

DVE Audio Mode

The **DVE Audio Mode** button is used to cycle through the available audio modes for the current DVE effect.

Forward

The **Forward** button changes how the options are cycled in either a forward or reverse direction. The button will be illuminated when cycling forward

and extinguished for reverse. If, while cycling through a long list of options, one overshoots the preferred option, select the **Forward** button and then cycle back one by pressing the **DVE Effect** button.

Next Transition DVE

The **DVE** button in the Next Transition group enables/disables a DVE operation on the next **Take**.

Note The **DVE Effect** button must be high tallied as well (not disabled).

DVE Definitions

There are three types of Digital Video Effects. These effects are Enter, Active, and Exit, each of which is explained below. Once the effect is selected (and the desired DVE audio mode is selected), the effect is entered by pressing the **TAKE** button. See *Enter and Exit Effects* on page 196 for more information about each individual effect.

Enter: A DVE effect is entered by selecting a configured entry effect by pressing the **DVE Effect** button repeatedly until the desired effect appears (Either Enter–>Pgm, Enter–>Pst, or Enter–>Aux.). The active state of the different effects will appear on the Pst/Pvw monitor (with the default audio selection).

Active: When an effect window is on AIR, the DVE effect is considered to be "active." The effect will remain active until an exit DVE effect is selected and made active by pressing the **TAKE** button.

Exit: A DVE effect is taken off air by selecting any of the three available exits (Either Exit->Pgm, Exit->Pst, or Exit->Aux.) and then pressing the **TAKE** button.

Available DVE Effects

The available DVE effect choices are:

- Exit->Pgm - This exit mode un-squeezes the source in the squeeze window (Pgm) leaving the Pgm video full screen.
- Exit->Pst - This exit mode replaces the on-air effect with the video selected on the Pst bus.
- Exit->Aux -This exit mode squeezes the squeeze window (Pgm) until it disappears leaving only the background video (Aux) on screen. At the end of the transition, Aux video moves to the Pgm bus.
- AudioOnly - This exit mode transitions only the audio. The active video effect is unchanged. The audio that will be on-air after pressing the **TAKE** button is selected with the **DVE Audio Mode** button. Available audio modes are determined by the "Available Audio Mode" selections explained below.
- Aux<->Pst - This is a transition that replaces the current background video (Aux) with the video selected on the Pst bus.
- SwapPgmAux - This is a cut-only transition that swaps the background (Aux) and squeeze window (pgm) video. The selected transition rate and type are disabled.
- Pst>Pgm>Aux - This cut-only transition rotates the sources on all three busses in the direction indicated by the ">." The selected transition rate and type are disabled.
- Pst<Pgm<Aux - This cut-only transition rotates the sources on all three busses in the direction indicated by the ">." The selected transition rate and type are disabled.

Available Audio Modes

When an effect is active, audio from one or both on-air video sources may be selected. The audio mode may be selected before entering the effect or while the effect is active by selecting the Audio Only exit mode. The available audio modes include the following:

- Pgm - Audio from the Pgm source only
- Aux - Audio from the Aux source only
- P/A - Pgm audio as an over to Aux audio
- A/P - Aux audio as an over to Pgm audio
- P+A - Pgm and Aux audio both at full level

Only the audio modes that are selected in the DVE configuration will be available for selection before entering an effect or as an Audio Only transition, while in the effect.

Dual Channel DVE

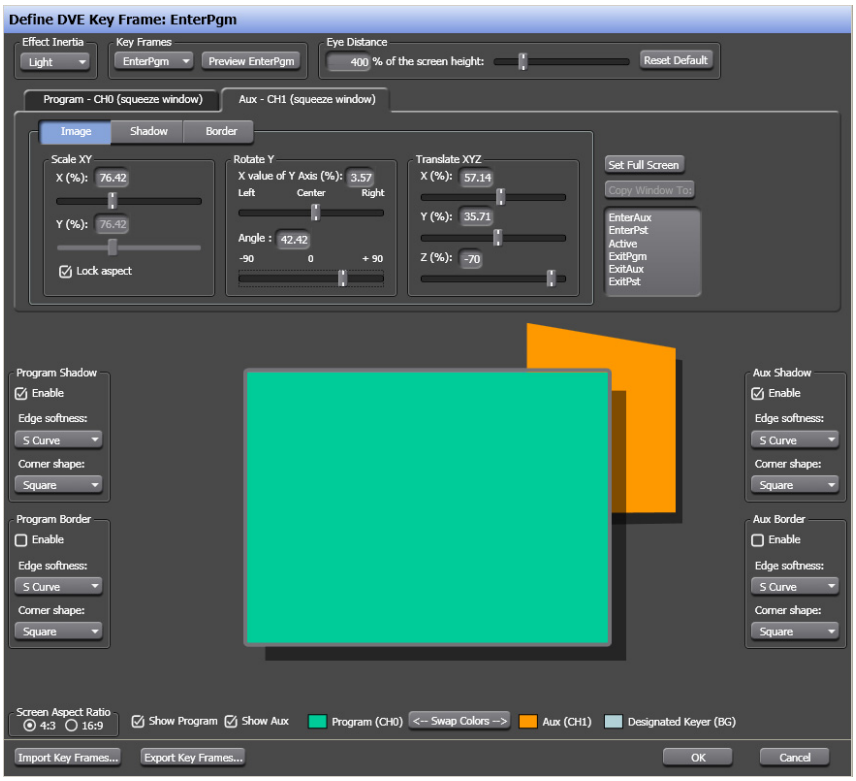
The Dual Channel DVE option allows one background bus (audio and video) and it's selected upstream keys to be in a transition window with another background bus and its selected upstream keys serving as the background. The Aux bus is utilized with DVE for selecting the second source.

A DVE effect is entered by selecting the desired effect and pressing **Take**. While the DVE effect is active, a variety of audio/video transitions may be performed (also by pressing **Take**). A DVE effect is exited by selecting one of the available exit modes and pressing **Take**.

When a DVE effect is active, the content of the active window is the Pgm bus. The content of the background is the Aux bus.

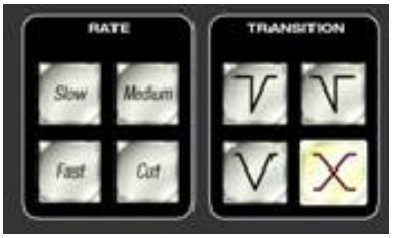
An example is shown in Figure 145.

Figure 145. Example of a Maestro DVE Effect



A transition type (cut, fade, or wipe) and transition speed are selected using the Maestro control panel. The Rate and Transitions buttons (Figure 146) are located to the left of the Effects button group.

Figure 146. The Rate and Transition Button Groups



Transitions to DVE effects and exits from DVE effects take place at the selected rate and type.

A unique number from 1-255 is entered for each DVE effect name in the Automation DVE Association table of the Configuration Editor. Make sure this number is the same as the number designated in your automation system for the desired effect.

Dual Channel DVE Keyframes Interpolation

The following tables show how a keyframe is applied to the different windows through the Enter, Active and Exit transitions. The tables will also show what effect will be full screen (FS). When a keyframe is applied, Image 1 is always over Image 2.

Table 2. EnterPgm

DVE Channel	Enter Keyframe	Active	Exit Keyframe
Image 1	Pgm Effect Window (FS)	Pgm Effect Window	Pgm Effect Window (FS)
Image 2	Aux Effect Window	Aux Effect Window	Aux Effect Window

Figure 147. EnterPgm

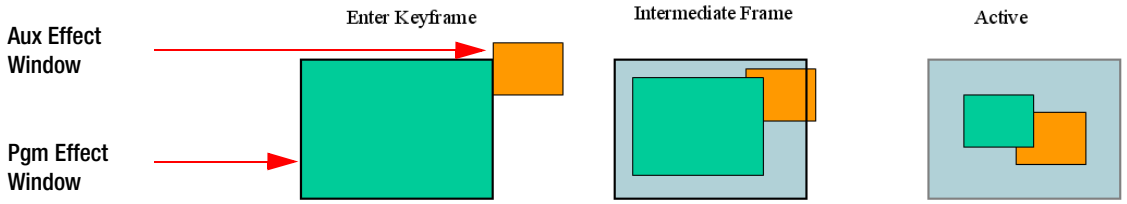


Figure 148. ExitPgm

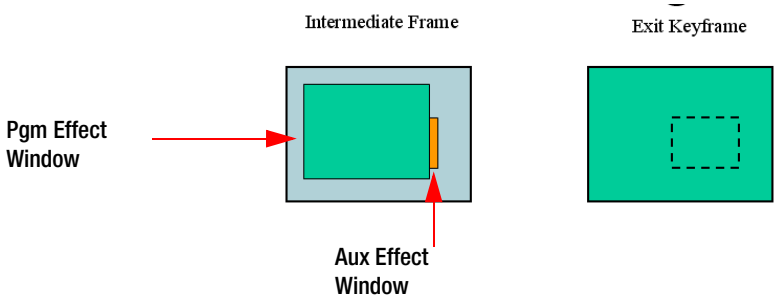


Table 3. EnterAux

DVE Channel	Enter Keyframe	Active (PGM & AUX swap roles)	Exit Keyframe (PGM & AUX swap roles)
Image 1	Aux Effect Window	Pgm Effect Window	Aux Effect Window
Image 2	Pgm Effect Window (FS)	Aux Effect Window	Pgm Effect Window (FS)

Figure 149. EnterAux

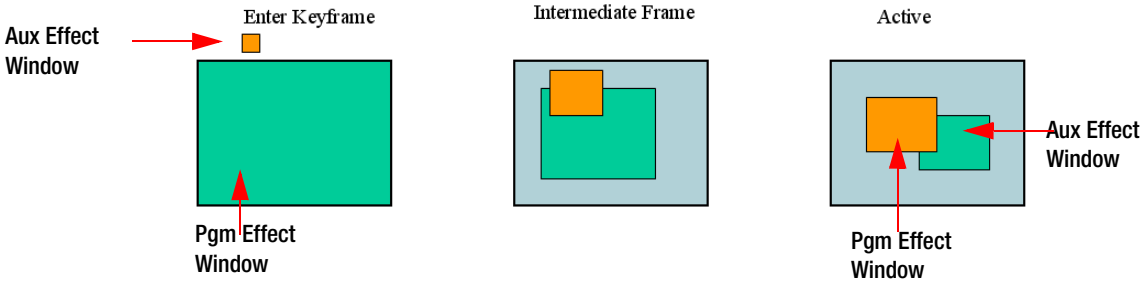


Figure 150. ExitAux

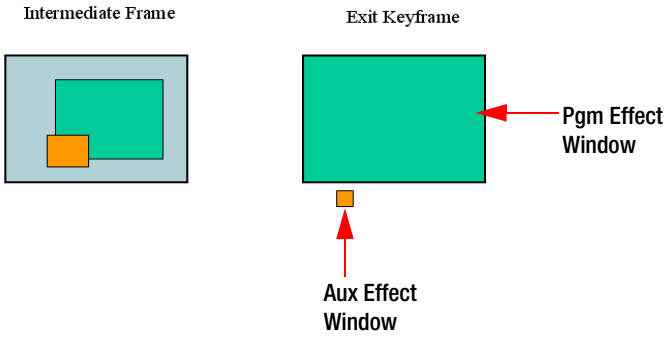


Table 4. EntePstx

DVE Channel	Enter Keyframe	Active	Exit Keyframe
Image 1	Pgm Effect Window	Pgm Effect Window	Pgm Effect Window
Image 2	Aux Effect Window	Aux Effect Window	Aux Effect Window

Figure 151. EnterPst

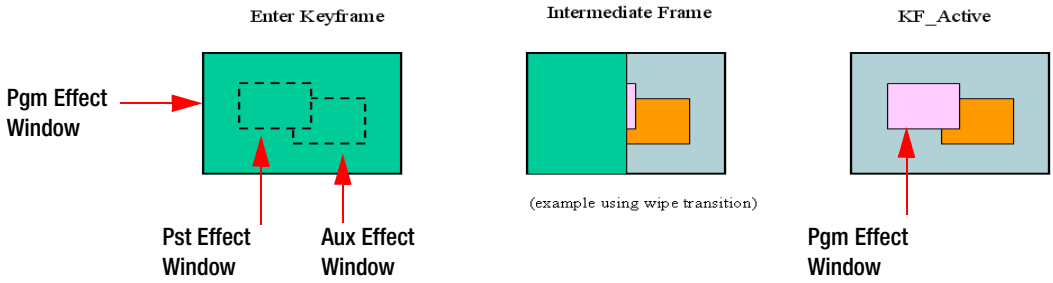
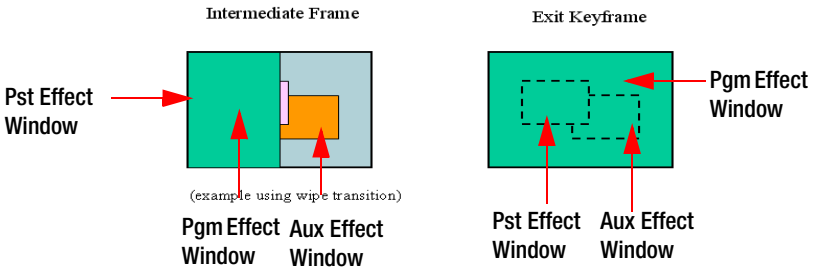


Figure 152. ExitPst



Tally Colors on the Control Panel

DVE Effect Example: EnterPgm

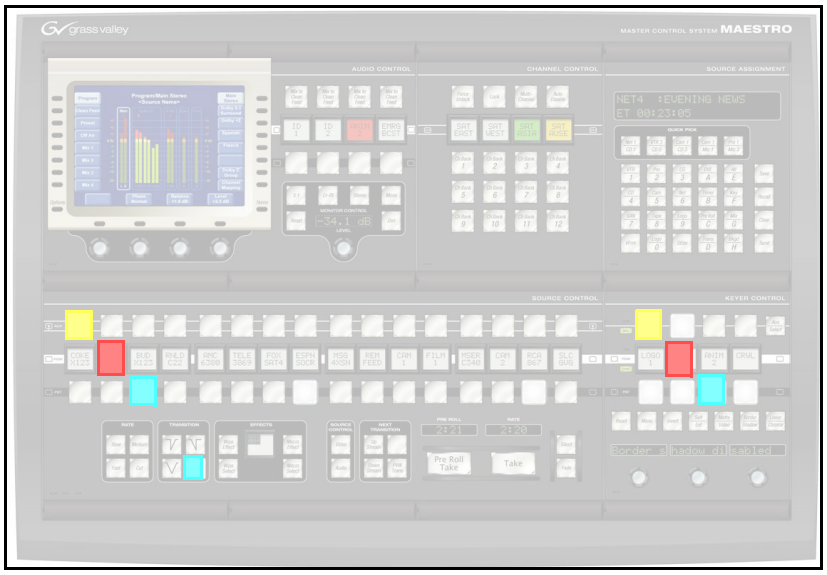
The following examples show the tally changes that will happen to the Maestro Master Control panel when the EnterPgm keyframe is selected.

Figure 153. Pre TAKE-No Upstream Transition

Off Air

On Air

No Change



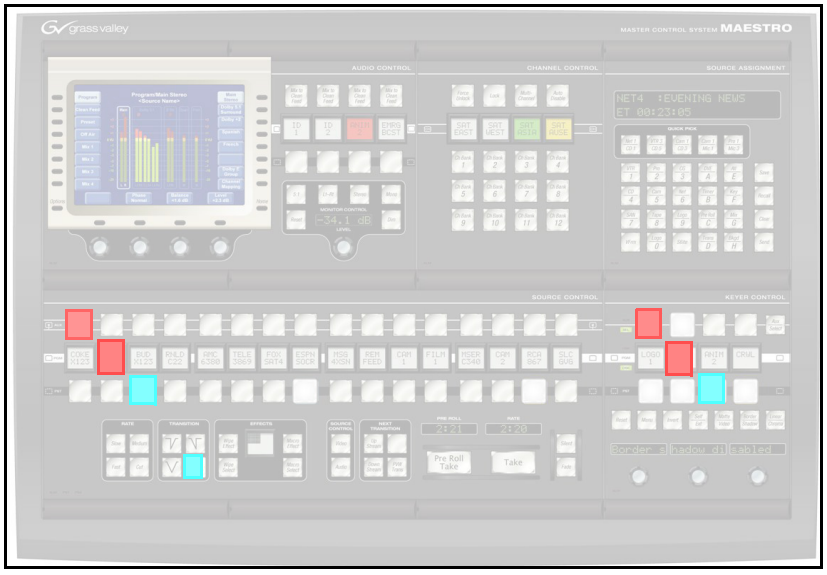
In the above example, the Aux window is Off Air. The Pgm window is On Air.

Figure 154. Post TAKE-No Upstream Transition

Off Air

On Air

No Change



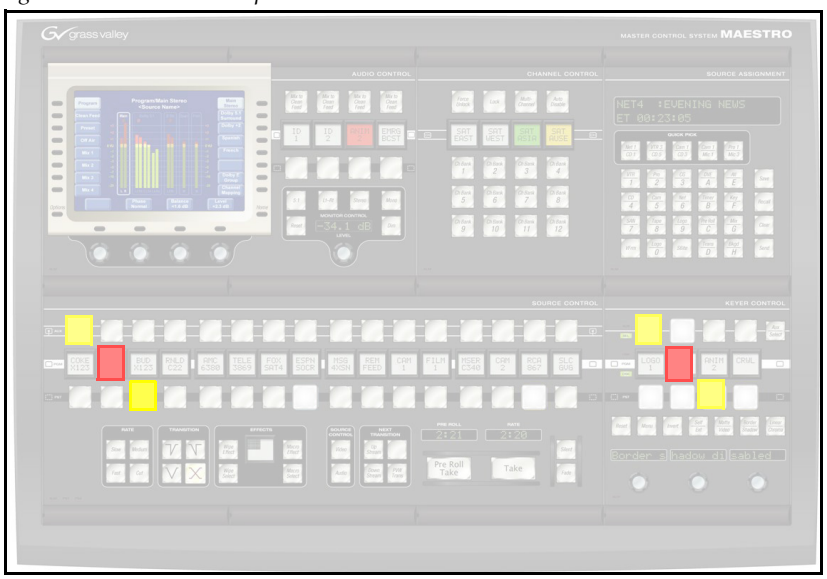
In the above example, both the Aux and Pgm window are On Air.

Off Air

On Air

No Change

Figure 155. Pre TAKE- Upstream Transition



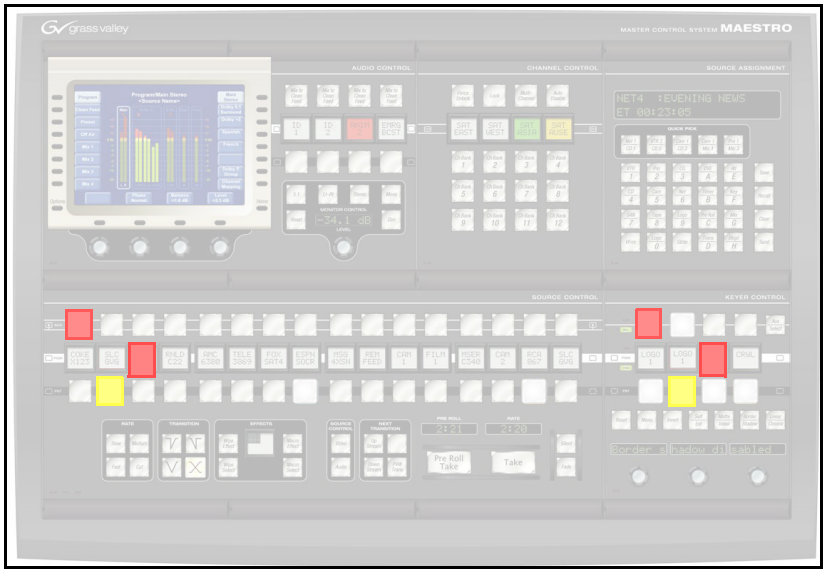
In the above example, both the Aux and Pst window are Off Air. The Pgm window is On Air.

Off Air

On Air

No Change

Figure 156. Post TAKE- Upstream Transition



In the above example, both the Aux and Pgm window are On Air. The Pst window is Off Air.

DVE Effect Example: EnterAux

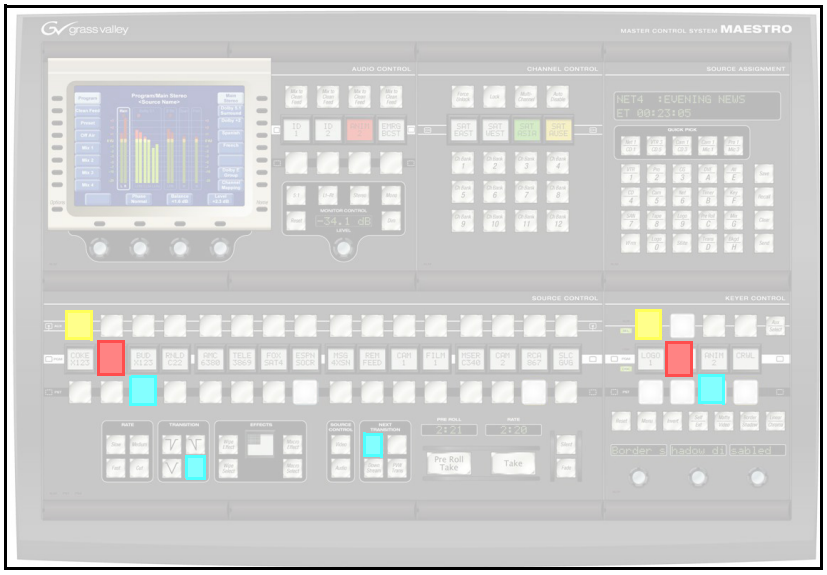
The following examples show the tally changes that will happen to the Maestro Master Control panel when the EnterAux keyframe is selected.

Figure 157. Pre TAKE-The Transition Next Up Button is Ignored

Off Air

On Air

No Change



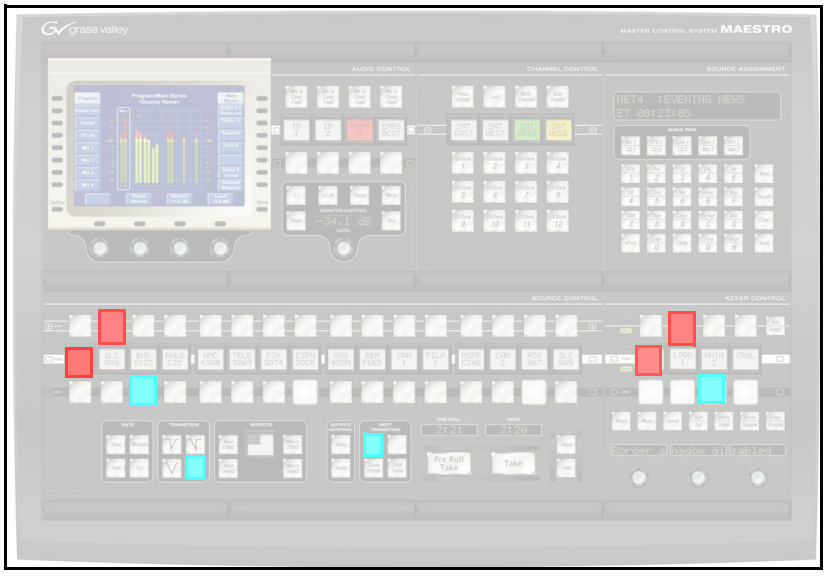
In the above example, the Aux window is Off Air. The Pgm window is On Air.

Figure 158. Post TAKE-The Transition Next Up Button is Ignored

Off Air

On Air

No Change

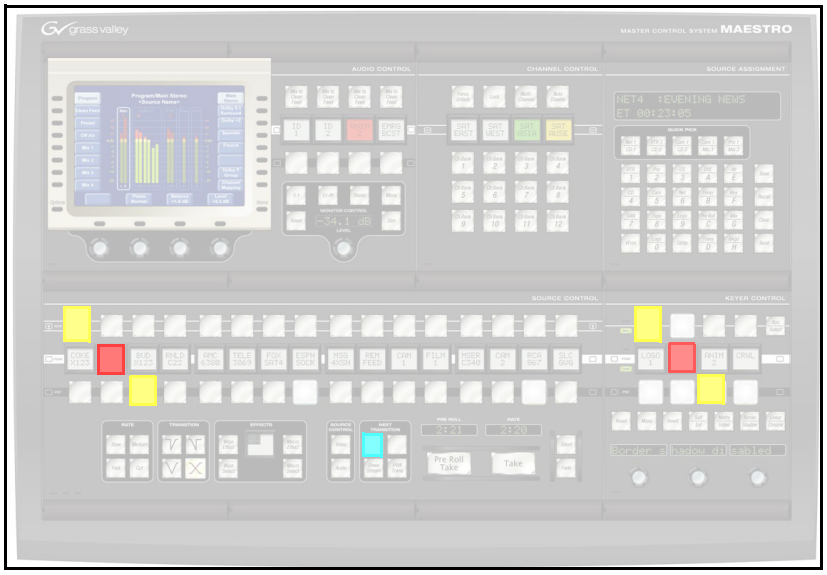


In the above example, the Aux and Pgm window is On Air.

DVE Effect Example: EnterPst

The following examples show the tally changes that will happen to the Maestro Master Control panel when the EnterPst keyframe is selected.

Figure 159. Pre TAKE-The Transition Next Up Button is Ignored



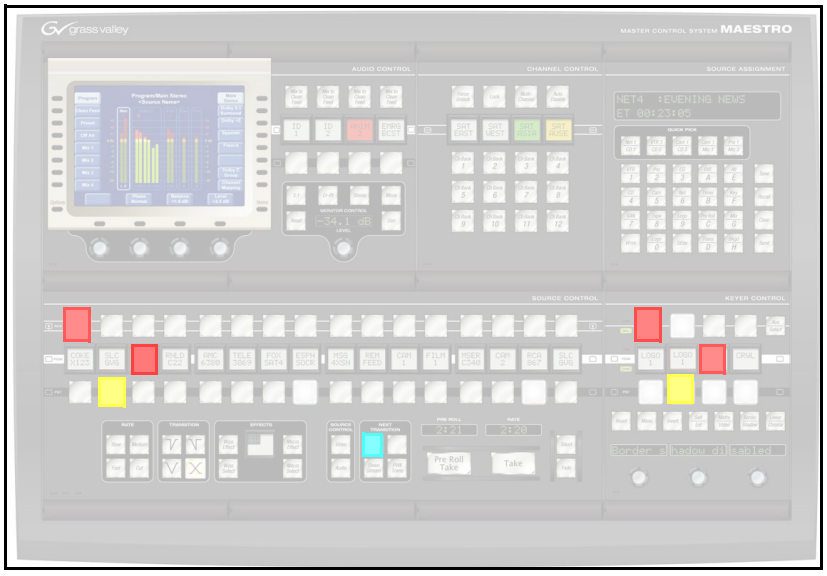
Off Air

On Air

No Change

In the above example, the Aux and Pst window is Off Air. The Pgm window is On Air.

Figure 160. Post TAKE-The Transition Next Up Button is Ignored



Off Air

On Air

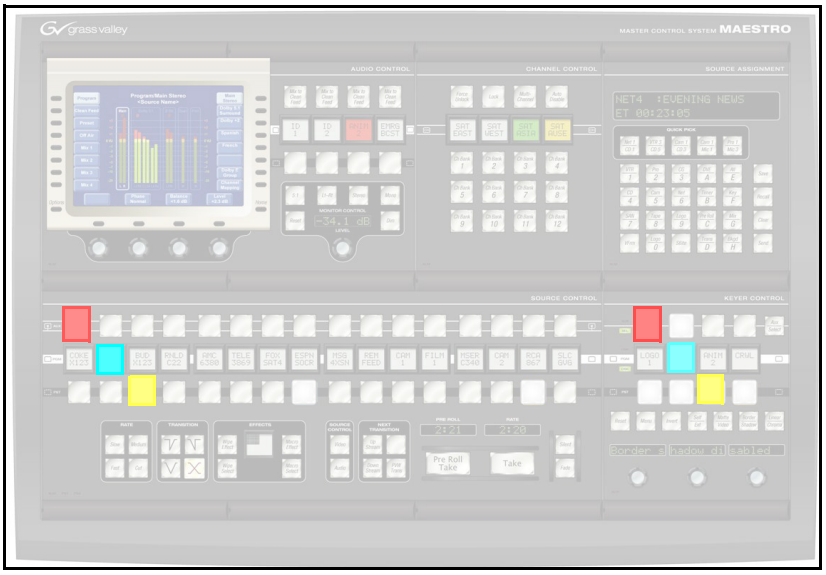
No Change

In the above example, the Aux and Pgm window is On Air. The Pst window is Off Air.

DVE Effect Example: Aux<->Pst

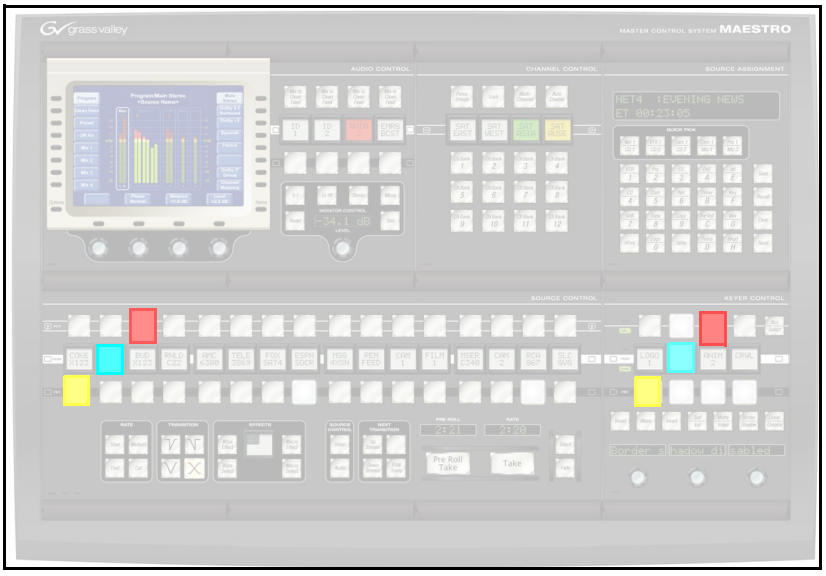
The following examples show the tally changes that will happen to the Maestro Master Control panel when the Aux<->Pst keyframe is selected.

Figure 161. Pre TAKE-The Transition Next Up Button is Ignored



In the above example, the Aux and Pgm window is On Air. The Pst window is Off Air.

Figure 162. Post TAKE-The Transition Next Up Button is Ignored



In the above example, the Aux and Pst busses have switched. The Pgm bus is blue since it is not affected by the change. That is, it will retain its previous state.

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